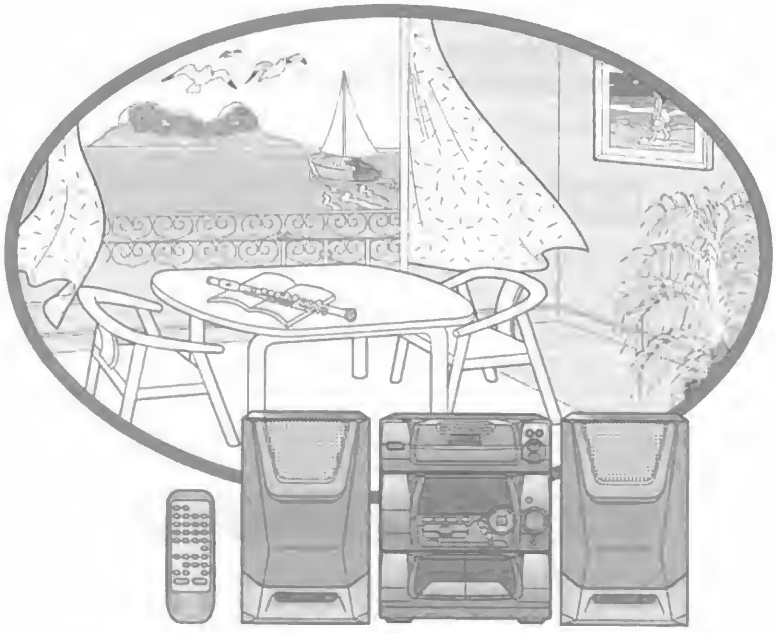
Panasonic®

CD Stereo System

SC-AK20

Operating Instructions



COMPACT disc DIGITAL AUDIO

Before connecting, operating or adjusting this product, please read these instructions completely. Please save this manual.

P PC

RQT3772-P

Dear customer

Thank you for purchasing this product.
For optimum performance and safety, please read these instructions carefully.

These operating instructions are applicable to the following systems.

System	SC-AK20
Main unit	SA-AK20
Speakers	SB-AK20

The model number and serial number of this product can be found on either the back or the bottom of the unit.
Please note them in the space provided below and keep for future reference.

	MODEL NUMBER	SERIAL NUMBER
Main unit		
Speakers		

User memo:

DATE OF PURCHASE _____
DEALER NAME _____
DEALER ADDRESS _____
_____
TELEPHONE NUMBER _____

CAUTION!
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

CAUTION:
TO PREVENT ELECTRIC SHOCK MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

Table of Contents

Before use

Supplied accessories 2
Precautions 4
Concerning the remote control 5
Connections 6
- Basic connections (for supplied accessories) 6
- External unit connection 7
- Optional antenna connections 7

Front panel controls 8

Preparations

Demo function 9
Setting the time 9
Presetting radio broadcasts 10

Radio operations

Listening to radio broadcasts 11

Compact disc operations

Listening to compact discs 12
- Loading and checking CDs 12
- Sequential play 13
- Direct access play 14
- Repeat play 14
- Random play 14
- Program play 15
- To listen to special CDs and tracks (CD-Manager function) 16

Tape deck operations

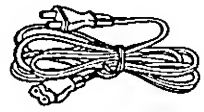
Listening to tapes 18

Supplied accessories

Please check and identify the supplied accessories. Use numbers indicated in parentheses when asking for replacement parts.

(Only for U.S.A.)
To order accessories call MSC Accessory Dept. 1800-332-5368

☐ AC power supply cord ..... 1 pc. (SJA172)



☐ FM indoor antenna (RSA0006) ..... 1 pc.

Recording operations

Before recording 19
Recording from radio broadcasts 20
Recording from compact discs 21
To record special CDs and tracks (CD Manager function) 22
Tape-to-tape recording 24

Adjustments

Sound quality, field, etc. 25

Timer operations

Timers 26
Using the play timer 26
Using the record timer 28
Using the sleep timer 29
To use two timers together 30

Other functions

Using an external unit 30

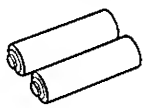
Reference

Remote control buttons and functions 32
Concerning compact discs 33
Concerning cassette tapes 33
Troubleshooting guide 34
Maintenance 35
Technical specifications ..... Back cover
Product service ..... Back cover
Before moving or shipping this unit ..... Back cover

☐ AM loop antenna set (RSA0022)
- AM loop antenna ..... 1 pc.
- AM antenna holder ..... 1 pc.

☐ Remote control transmitter (EUR644344) ..... 1 pc.

☐ Batteries ..... 2 pcs. [R6/LR6 (AA, UM-3)]



THE FOLLOWING PHRASES ARE APPLIED ONLY FOR U.S.A.:

CAUTION:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Notice: This system complies with new Part 15, except for the radio receiver, which complies with old Part 15, Subpart C of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation. The radio receiver is not subject to above item (2).

Any unauthorized changes or modifications to this equipment would void the user's authority to operate this device.

WARNING:
TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS APPLIANCE TO RAIN, SPLASHING, DRIPPING OR MOISTURE.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Before using this unit please read these operating instructions carefully. Take special care to follow the warnings indicated on the unit itself as well as the safety suggestions listed below.
Afterwards keep them handy for future reference.

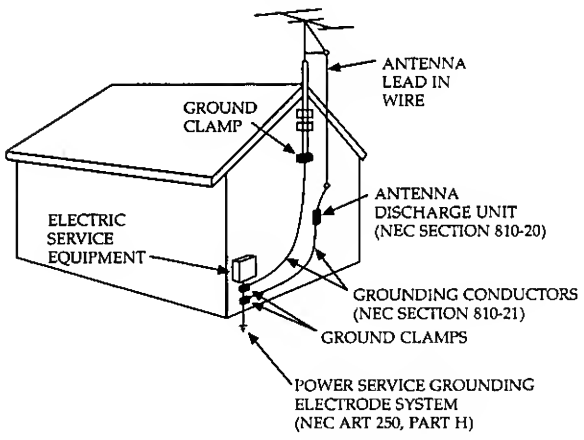
Safety

1. **Power Source**—The unit should be connected to power supply only of the type described in the operating instructions or as marked on the unit.
2. **Polarization**—If the unit is equipped with a polarized AC power plug (a plug having one blade wider than the other), that plug will fit into the AC outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
3. **Power Cord Protection**—AC power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Never take hold of the plug or cord if your hand is wet, and always grasp the plug body when connecting or disconnecting it.
4. **Nonuse Periods**—When the unit is not used, turn the power off. When left unused for a long period of time, the unit should be unplugged from the household AC outlet.

Installation

Environment

1. **Outdoor Antenna Grounding**—If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70–1990, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See figure below.



NEC–NATIONAL ELECTRICAL CODE

2. **Water and Moisture**—Do not use this unit near water—for example, near a bathtub, washbowl, swimming pool, or the like. Damp basements should also be avoided.
3. **Heat**—The unit should be situated away from heat sources such as radiators and the like.
   It also should not be placed in temperatures less than 5°C (41°F) or greater than 35°C (95°F).
4. **Condensation**—Moisture may form on the lens in the following conditions...
   - immediately after a heater has been turned on.
   - in a steamy or very humid room.
   - when the unit is suddenly moved from a cold environment to a warm one.

   If moisture forms inside this unit, it may not operate properly. To correct this problem, turn on the power and wait about one hour for the moisture to evaporate.

Placement

1. **Ventilation**—The unit should be situated so that its location or position does not interfere with its proper ventilation. Allow 10 cm (4") clearance from the rear of the unit.
2. **Foreign Material**—Care should be taken so that objects do not fall into and liquids are not spilled into the unit. Do not subject this unit to excessive smoke, dust, mechanical vibration, or shock.
3. **Magnetism**—The unit should be situated away from equipment or devices that generate strong magnetic fields.
4. **Stacking**—Do not place heavy objects, other than system components, on top of the unit.
5. **Surface**—Place the unit on a flat, level surface.
6. **Carts and Stands**—The unit should be used only with a cart or stand that is recommended by the manufacturer.
   The unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.

7. **Wall or Ceiling Mounting**—The unit should not be mounted to a wall or ceiling, unless specified in this operating instructions.

Maintenance

(See page 35 for details.)

Clean the cabinet, panel and controls with a soft cloth lightly moistened with mild detergent solution.
Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

Service

1. **Damage Requiring Service** —The unit should be serviced by qualified service personnel when:
   (a) The AC power supply cord or the plug has been damaged; or
   (b) Objects have fallen or liquid has been spilled into the unit; or
   (c) The unit has been exposed to rain; or
   (d) The unit does not appear to operate normally or exhibits a marked change in performance; or
   (e) The unit has been dropped, or the enclosure damaged.
2. **Servicing**—The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to an authorized service personnel.
   (Only for U.S.A.)
   Call 1-800-545-2672 for the address of an authorized factory servicenter.

Listening caution

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. This manufacturer and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion—and, most importantly, without affecting your sensitive hearing.

We recommend you to avoid prolonged exposure to excessive noise.

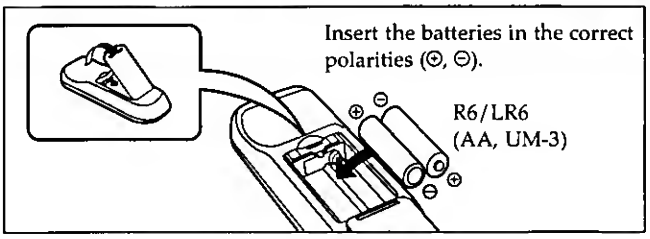
Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing.
Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.
To establish a safe level:
- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

Once you have established a comfortable sound level:
- Set the dial and leave it there.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

Concerning the remote control

Battery installation



Use of batteries

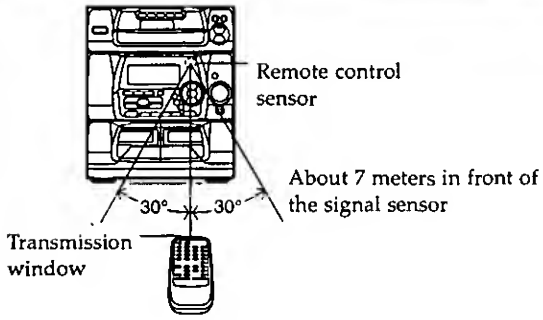
- Do not mix old and new batteries, or batteries of different types (manganese and alkaline, etc.).
- Never subject batteries to excessive heat or flame; do not attempt to disassemble them; and be sure they are not short-circuited.
- If the remote control is not to be used for a long period of time, remove the batteries and store them in a cool, dark place.
- Do not attempt to recharge alkaline or manganese batteries.
- Do not use rechargeable type batteries.

Battery life

The battery life is about one year.

The batteries should be replaced if commands from the remote control transmitter do not operate the unit even when the transmitter is held close to the front panel.

Correct method of use



Operations notes

- Do not place obstacles between the remote control signal sensor and remote control unit.
- Do not expose the remote control signal sensor to direct sunlight or to the bright light of an invertor fluorescent light.
- Take care to keep the remote control signal sensor and end of the remote control unit free from dust.
- If this system is installed in a rack with glass doors, the glass doors' thickness or color might make it necessary to use the remote control a shorter distance from the system.

To prevent damage

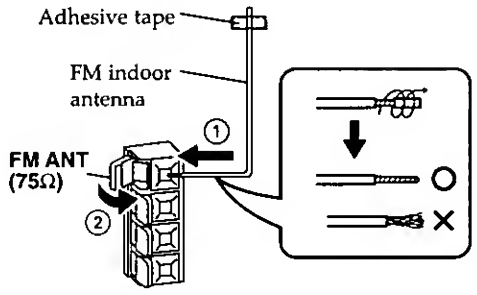
- Never place heavy items.
- Do not disassemble or reconstruct.
- Do not spill water or other liquids.

Basic connections (for supplied accessories)

Before making connections:
- Speakers are symmetrically the same on the inside, so you don't have to orient them in a certain one or another.
- Plug the AC power supply cord into a household AC outlet only after all other connections have been made.

1 FM indoor antenna

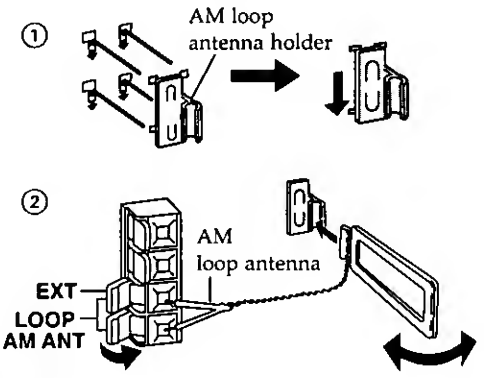
Tape the antenna to a wall or column, in a position where radio signals are received with the least amount of interference.

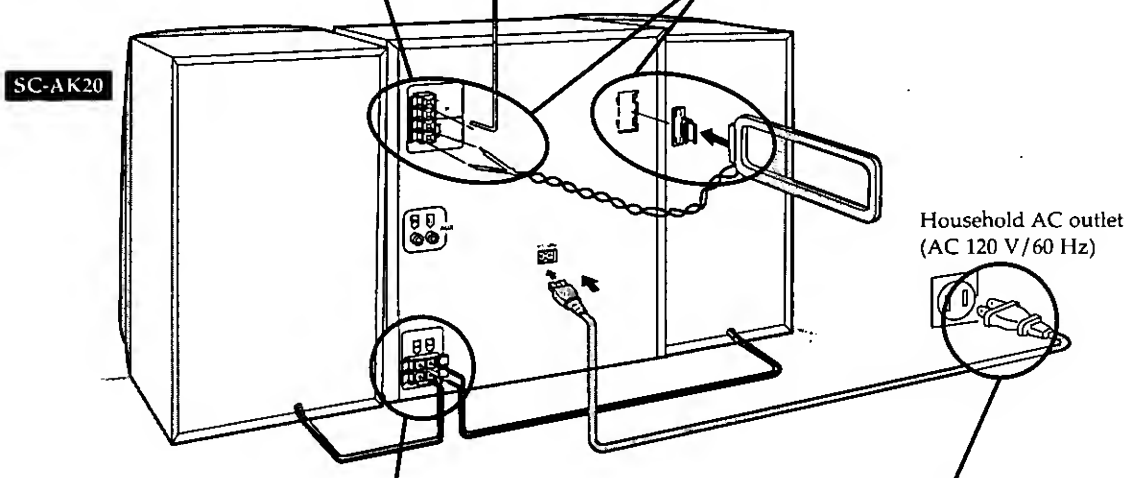


For best reception sound quality:
An FM outdoor antenna is recommended. (See page 7.)

2 AM loop antenna

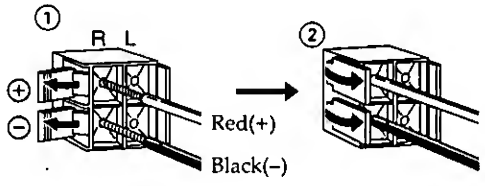
After attaching the antenna, turn on the system and tune in a broadcast station. Then, turn the antenna to the angle of best reception and least interference.





3 Speaker cords

Match the cords to the terminals by color and connect.



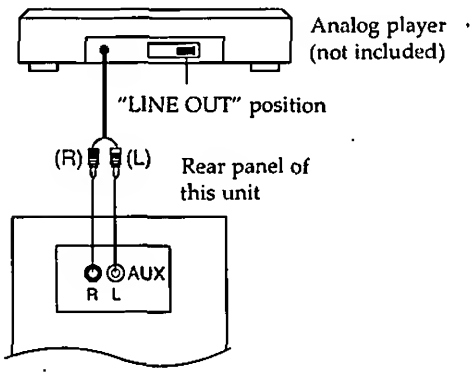
Note
- To prevent damage to circuitry, never short-circuit positive (+) and negative (–) speaker wires.
- Do not take the front net off speakers.

4 AC power supply cord

Caution
Use this speaker only with the recommended system. Failure to do so may lead to damage to the amplifier and/or the speaker, and may result in the risk of fire. Consult a qualified service person if damage has occurred or if you experience a sudden change in performance.

External unit connection

- For details, refer to the instruction manual of the units which are to be connected.
- This example shows how to connect the analog player with the PHONO OUT/LINE OUT switch.
- When units other than those described below are to be connected, please consult with your audio dealer.



Note

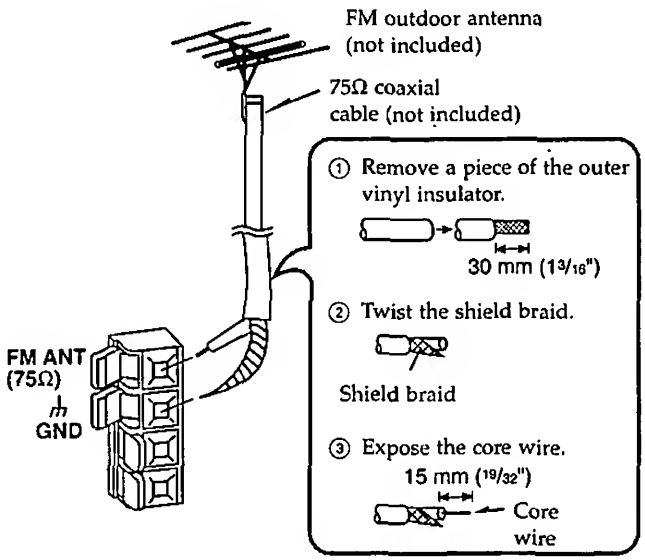
- Only an analog player with a built-in phono equalizer can be connected.
- Set the switch to the "LINE OUT" position at the back of the analog player.

Optional antenna connections

You may need an outdoor antenna if you use this system in a mountainous region or inside a reinforced-concrete building, etc.

FM outdoor antenna

Disconnect the FM indoor antenna if an FM outdoor antenna is installed.

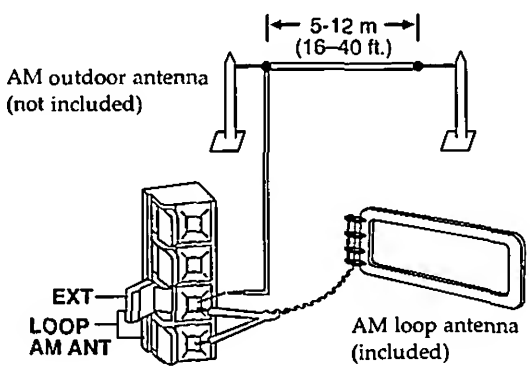


Note

An outdoor antenna should be installed by a competent technician only.

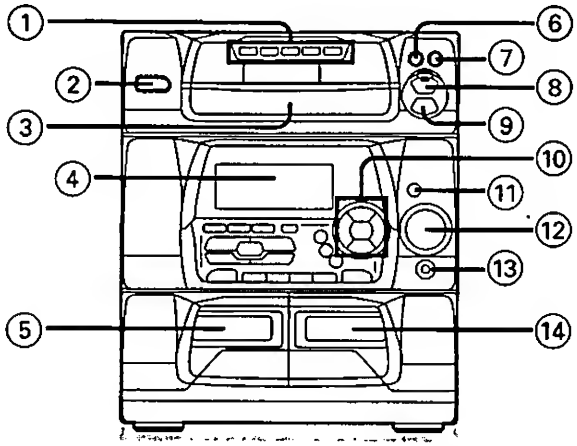
AM outdoor antenna

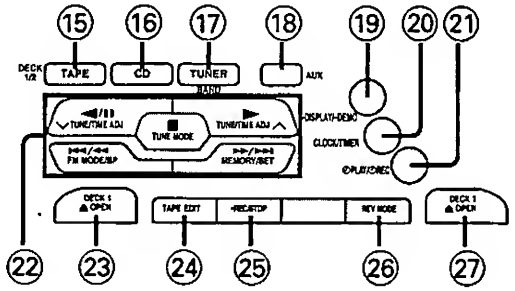
Connect the outdoor antenna without removing the AM loop antenna. Run 5 to 12 m of vinyl-covered wire horizontally along a window or other convenient location.



Note

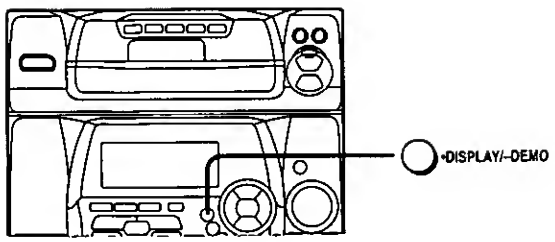
When the unit is not in use, disconnect the outdoor antenna to prevent possible damage that may be caused by lightning. Never use an outdoor antenna during an electrical storm.





No.	Name	Ref. page
①	Disc select buttons and indicators (DISC 1–DISC 5)	12
②	Power "STANDBY ⏻/ON" switch (POWER, STANDBY ⏻/ON)	9
③	Disc tray	12
④	Display	
⑤	Deck 1 cassette holder	18
⑥	Disc tray open/close button (⏏ OPEN/CLOSE)	12
⑦	Disc check open button (OPEN, -NEXT/-AUTO)	12
⑧	CD manager button (CD MANAGER)	16
⑨	Random play button (RANDOM)	14
⑩	3D space EQ button (3D SPACE EQ)	25
⑪	V. BASS button (V. BASS)	25
⑫	Volume control (VOLUME)	11
⑬	Headphone jack (PHONES)	30
⑭	Deck 2 cassette holder	20

No.	Name	Ref. page
⑮	Tape/deck select button (TAPE, DECK 1/2)	18
⑯	CD button (CD)	13
⑰	Tuner/band select button (TUNER/BAND)	10
⑱	AUX button (AUX)	30
⑲	Display select/demonstration button (-DISPLAY/-DEMO)	9,25
⑳	Clock/timer button (CLOCK/TIMER)	9,27
㉑	Play timer/record timer button (⏲PLAY/⏲REC)	27
㉒	Basic operating buttons Buttons change according to the source.	
㉓	Deck 1 open button (DECK 1, ⏏ OPEN)	18
㉔	Tape edit button (TAPE EDIT)	24
㉕	Recording start/stop button (•REC/STOP)	20
㉖	Reverse mode select button (REV MODE)	18
㉗	Deck 2 open button (DECK 2, ⏏ OPEN)	18



Demo function

The demo function changes the display to an air plane taking off from an airport.

Turning the demo function ON/OFF
Press POWER and hold down DISPLAY/DEMO.
Every time you hold down the button;

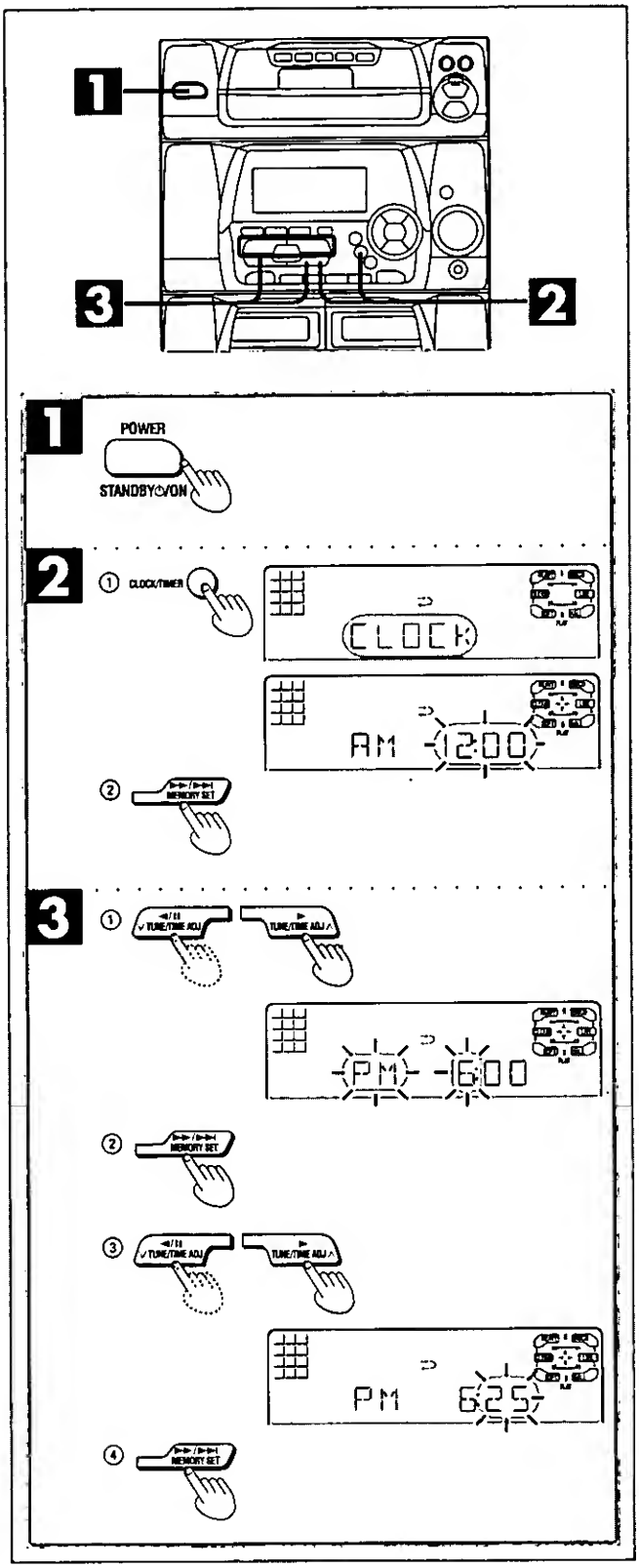
DEMO (ON) ⟷ NO DEMO (OFF)

When the demo function is ON, the demo is played automatically in the following cases.

- **When power is ON**
  If the input source is set to CD or tape, and the system is left on standby for more than 2 minutes
- **When power is OFF**
  If the clock has not been set

Setting the time

This is a 12-hour display clock.
This example in the figure shows how to set the time for 6:25 p.m.



1 Switch on the power.

2 ① Press CLOCK/TIMER to select "CLOCK".
Every time you press the button;

CLOCK → ⊙REC → ⊙PLAY
↑— Previous display ←┘

② (within 5 seconds or so) Press MEMORY/SET.

3 ① Press ∨ or ∧ to select the hour.

② Press MEMORY/SET.

③ Press ∨ or ∧ to select the minutes.

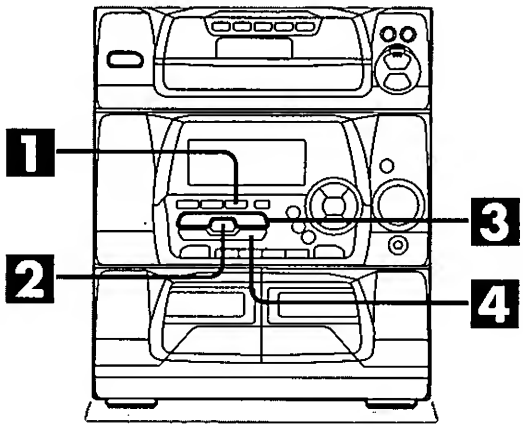
④ Press MEMORY/SET to finish setting the time.

The display will return to whatever was displayed before you set the time.

To display the time when power is ON
Press CLOCK/TIMER to select "CLOCK".
The time will be displayed for about 3 seconds and then the display will return to whatever was previously displayed.

Presetting radio broadcasts

- Up to 12 stations can each be set in the FM and AM bands automatically.
- If broadcast frequencies are preset in the memory, you can easily tune in any of these frequencies from the system or remote control unit.
- You can preset just those stations you like. (See "Presetting only your favorite stations" below.)



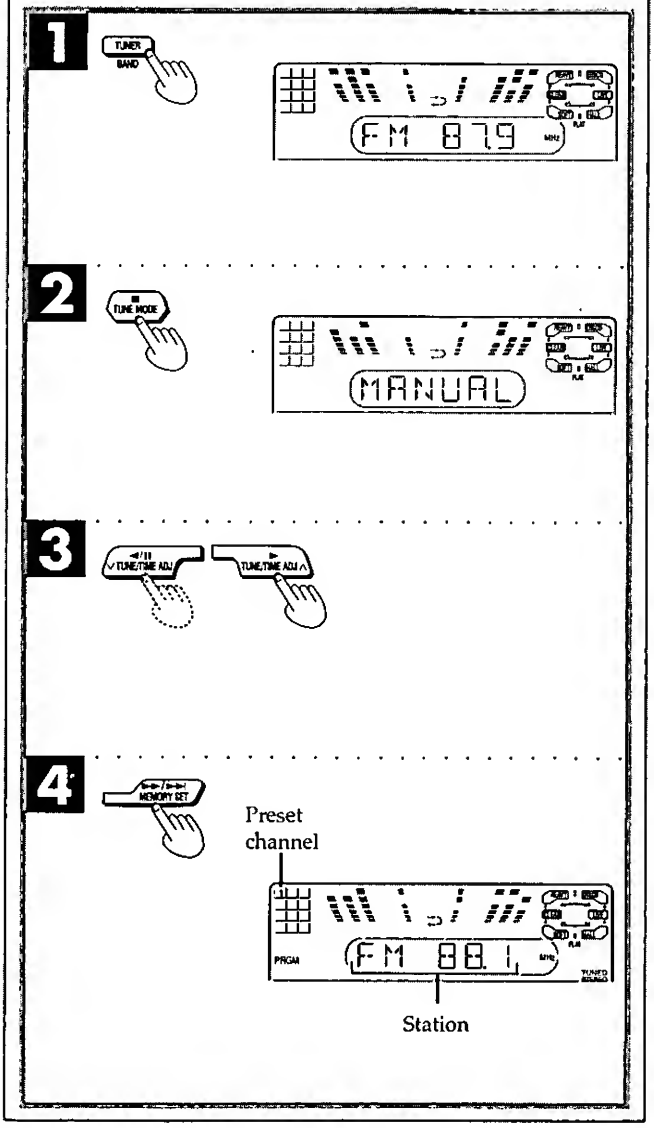
1 Press TUNER BAND to select "FM" or "AM".
The power will come on automatically.
Every time you press the button; "FM" ⟷ "AM".

2 Press TUNE MODE to select "MANUAL".
Every time you press the button; "MANUAL" ⟷ "PRESET".

3 Press ∨ or ∧ until the display shows the frequency from which you want to begin automatic memory presetting.

Tips on tuning in radio stations
① Hold down either arrow button until the frequency numbers start scrolling.
② When near to the frequency you are looking for, press the button repeatedly until tuning the broadcast in.

4 Press and hold MEMORY/SET until the frequency begins to change.
This will start presetting automatically. When finished, the radio will tune in last station memorized.



If auto presetting is not possible because radio signals are weak or for some other reason, do the following.

Presetting only your favorite stations

Preset the stations one at a time.
1. Perform above steps 1 and 2. Then, select a station with ∨ and ∧, and press MEMORY/SET. "PRGM" will flash on the display.
2. While "PRGM" is flashing, select a preset channel with ∨ or ∧, and press MEMORY/SET again. "PRGM" will go out and the station will be stored in memory.

FM allocation setting

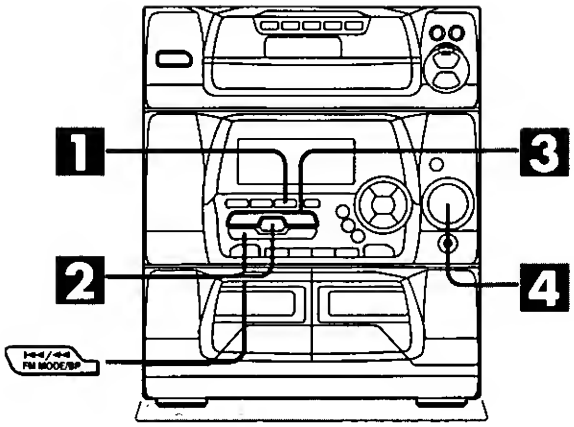
By adjusting the allocation, you can enable this tuner to receive FM broadcasts allocated in 0.1 MHz steps.
1. Press and hold TUNER BAND for approximately 5 seconds.
   The frequency display will be returned to the minimum frequency of the FM band and the display will begin to flash.
   Keep holding for approximately 5 more seconds.
2. When the display stops flashing and indicates a different frequency number, release TUNER BAND.

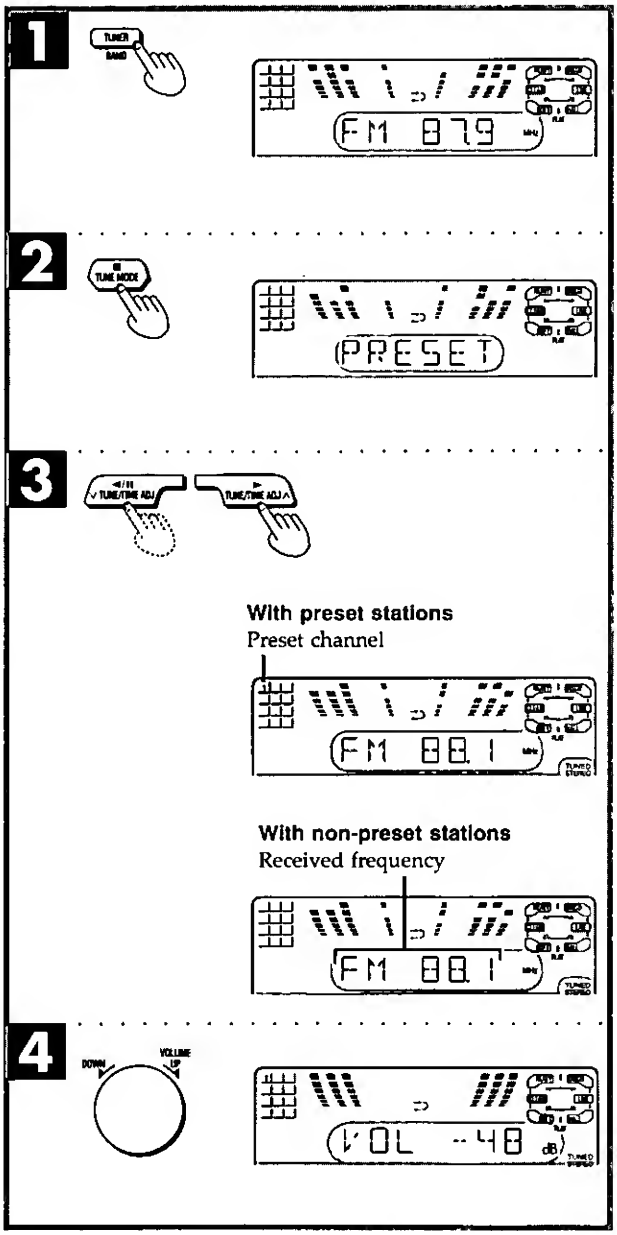
To return to the original frequency, repeat steps 1 to 2 above.

Note

After changing the "allocation" setting, the frequencies you previously preset in the memory will be cleared.

Memory retention
Your preset is retained in memory for about 2 weeks while the system is unplugged.





Listening to radio broadcasts

1 Press TUNER BAND to select "FM" or "AM".
The power will come on automatically.
Every time you press the button; "FM" ⟷ "AM".

2 Press TUNE MODE to select "PRESET" or "MANUAL".
Every time you press the button; "MANUAL" ⟷ "PRESET".

PRESET: For preset stations
MANUAL: For non-preset stations

3 Press ∨ or ∧ to select the desired broadcast.
"STEREO" lights when an FM stereo broadcast is being received. "TUNED" lights when you precisely tune in a broadcast station.

4 Adjust the volume level.

Auto tuning

Auto tuning is an easy way to tune in non-preset stations ("MANUAL" is displayed).

Hold down either ∨ or ∧, and release the button when the frequency starts scrolling.
The radio will stop automatically on the first station it picks up.
- When there is outside interference, the radio sometimes stops on a certain frequency where no station is broadcasting.

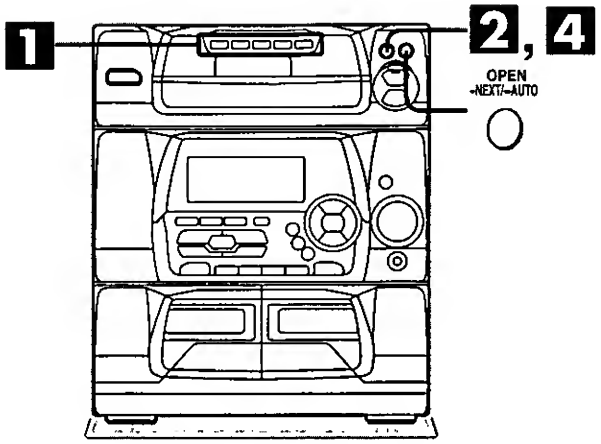
To stop auto tuning
Press either ∨ or ∧ again.

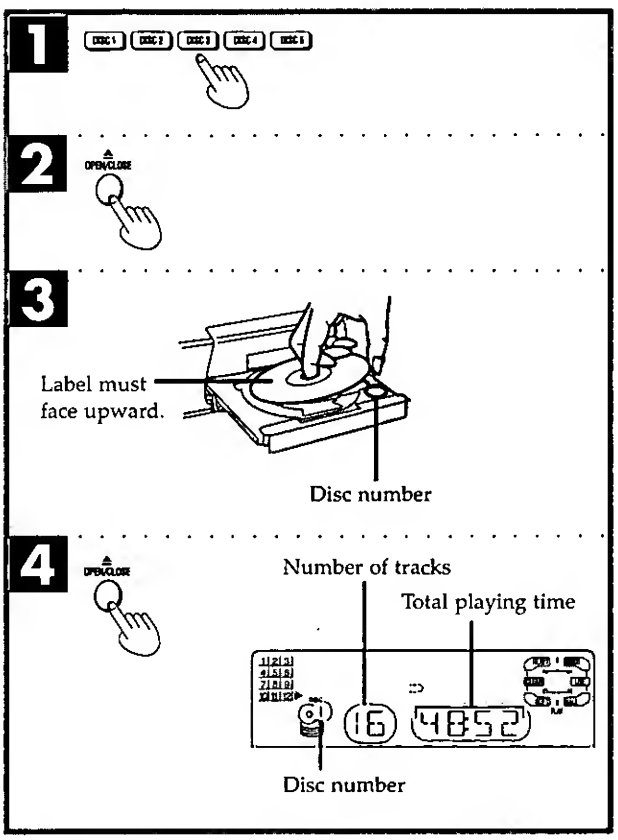
If noise is excessive in the FM stereo mode

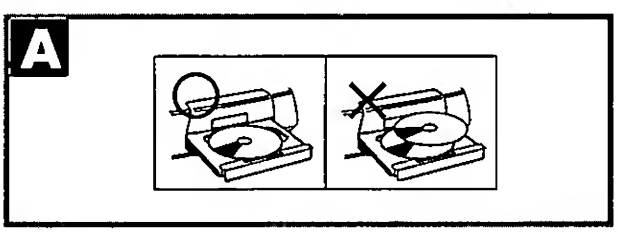
Press FM MODE/BP. "MONO" will light up.
Sound will be produced in monaural, but this also reduces noise. Press the button again to cancel. "MONO" will go out.

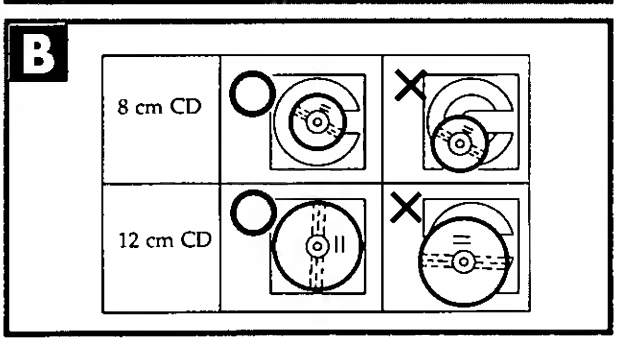
Normally, you'll want to listen in stereo, so leave "MONO" off. This way, you can listen to stereo broadcasts in stereo, and monaural broadcasts in mono.

Note
- If you preset stations in memory, you can tune in a preset station by simply selecting the preset channel with the numeric buttons on the remote control.
- Sound is momentarily interrupted if you load/unload tapes while listening to an AM broadcast.









Listening to compact discs

Loading and checking CDs

Always stop the changer before loading or changing CDs. You cannot change CDs while a disc is playing.

How to load CDs

1. **Press DISC 1–DISC 5, whichever you want to open.**
2. **Press ≜ OPEN/CLOSE.**
3. **Set CD in the tray.**
4. **Press ≜ OPEN/CLOSE.**
   The tray will close and the disc No., track No. and total playing time will be shown on the display.

To load several CDs consecutively

Press OPEN -NEXT/-AUTO.
Every time you press the button, the next tray will open. After loading all the CDs you want, press ≜ OPEN/CLOSE and close the trays.

How to check which trays have discs

Hold down OPEN -NEXT/-AUTO.
All trays will open and close automatically, in order, one at a time.

Note

Do not try loading or changing CDs while the trays are opening and closing.

Disc indicators (DISC 1~DISC 5)

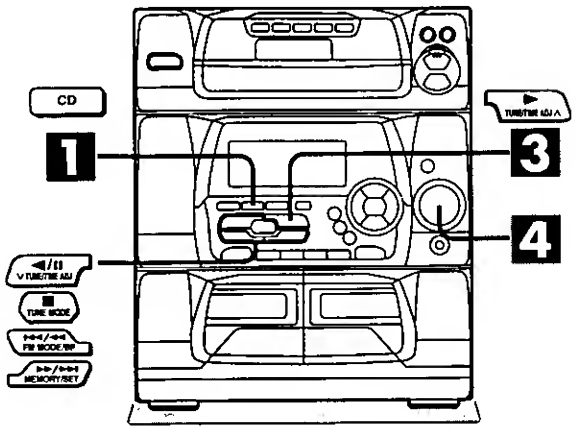
Disc indicators turn the below colors whether the said tray is loaded or not.

Green	When selected (When in the playing position)
Orange	In all other cases

To prevent damage

Always observe the following points.

- Load only 1 CD per tray. **A**
- Load CDs as shown in figure **B**.
  The adapter is not needed with 8 cm CDs (singles).
- Set the system on a flat, level surface.
  Do not set it on top of magazines, inclined surfaces, etc.
- Do not move the system while trays are opening/closing, or when loaded.
  Always unload all CDs and set the system "shipping mode" (back cover) before moving the system.
- Do not put anything except CDs in trays.
- Do not use cleaning CDs or CDs which are badly warped or cracked.
- Do not use CDs with poorly attached labels or stickers.
  Adhesive protruding from underneath stickers or left over from peeled off stickers can cause your stereo to malfunction.



Sequential play

1 Press CD.
The power will come on automatically.

2 Insert CDs in the trays.
(For details, see page 12.)

3 Press ►.
Play will start from the first track on the disc shown on the display, and will continue until playing the last track of the final disc (see below).

4 Adjust the volume level.

To stop the disc play A
Press ■.

When " ⩥ " appears on the display
It indicates there are 13 or more tracks on the disc at the playing position.

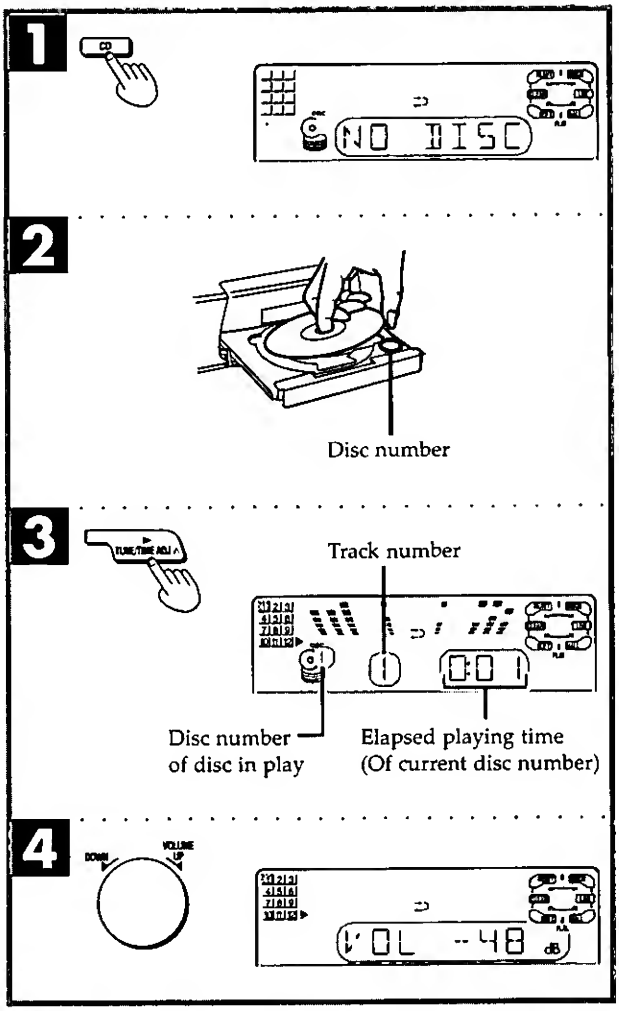
What is meant by "final disc"?
For example, if play starts from disc 4, disc 3 will be the "final disc".
Order of progression:
Disc 4→5→1→2→3

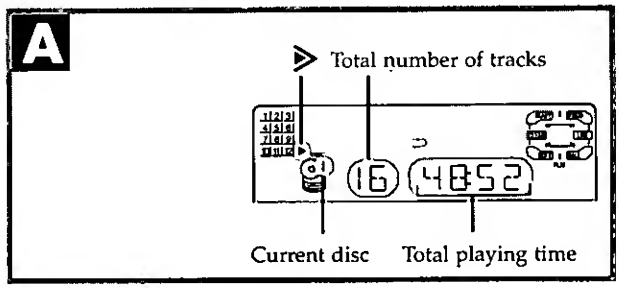
To pause	Press II during playback. To resume playback, press ►.
To search forward/ backward (Search)	Hold down ⏮/◄◄ (backward) or ►►/⏭ (forward) during playback.
To skip forward/backward	Press ⏮/◄◄ (backward) or ►►/⏭ (forward) during playback.

Note

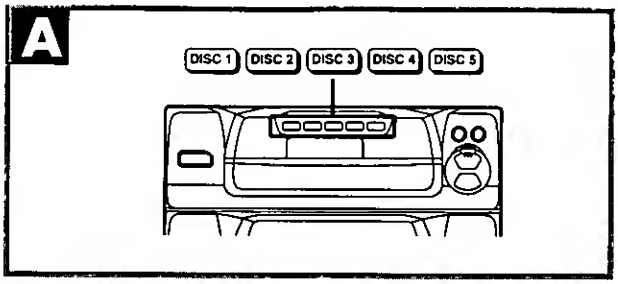
- During random play (page 14), you cannot skip to tracks which have already been played out.
- During program play (page 15) or random play, you can search forward or backward only within the current track.
- During program play, skipping is always in the programmed order, whether forward or backward.

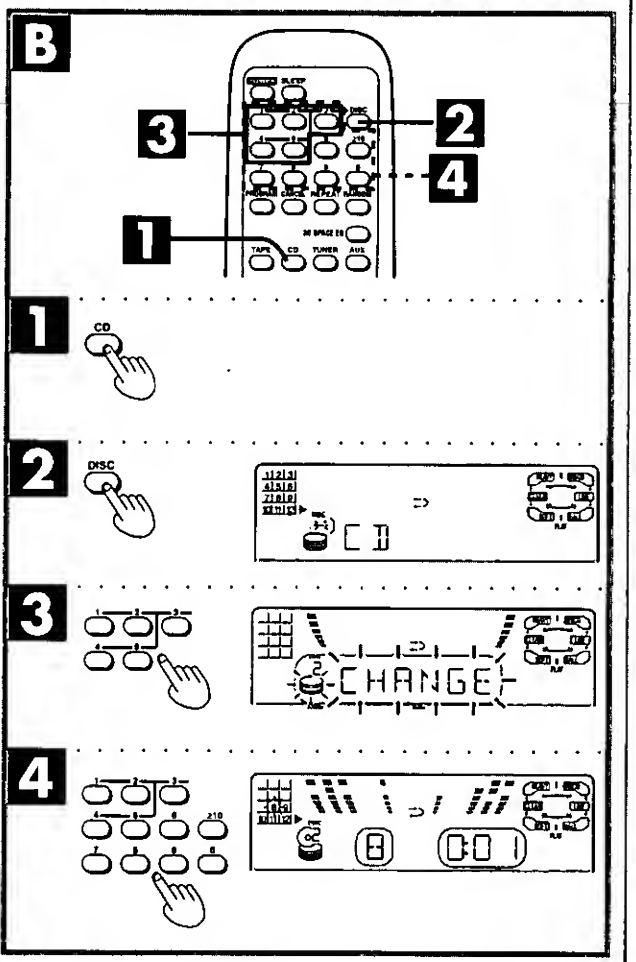
One-touch play
When power is OFF, playing starts automatically when you press CD.

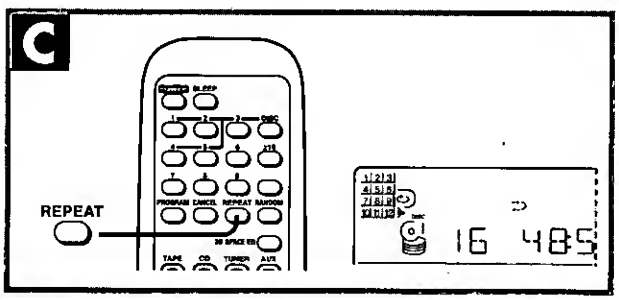


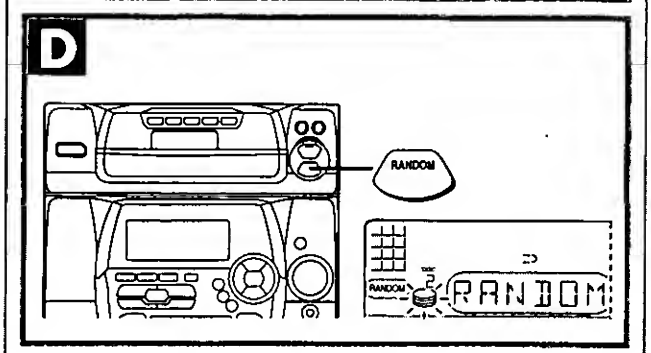


Listening to compact discs









Direct access play

To listen to a favorite CD A

Press DISC 1–DISC 5, whichever disc you want.
The selected CD will be played from the first track to the last track of the final disc (page 13).

To listen to a favorite track B

by remote control only

1 **Press CD.**

2 **Press DISC.**

3 (within 10 seconds or so)
Press 1–5, whichever disc you want.

4 **Press the numeric button to select the desired track number.**
The CD will be played from the selected track to the last track of the final disc (page 13).

To select a two-digit track
Press ≥10 and then the two numbers you want within 10 seconds or so.

For example
Track no. 20: ≥10→2→0
Track no. 35: ≥10→3→5

Repeat play

by remote control only

Press REPEAT before or during play. C
All tracks on the loaded CD are repeated.

To cancel repeat play
Press REPEAT once again.

To repeat a favorite track
1. Program the track you want (page 15).
2. Press REPEAT and make sure " ↻ " is displayed.
3. Press ►. Playback will start.

To repeat just one track
Set the 1-TRACK play mode (page 16), press REPEAT before or during playback, and make sure " ↻ " is displayed.

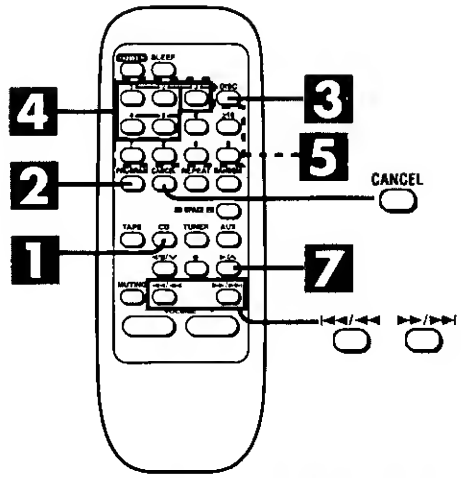
Random play

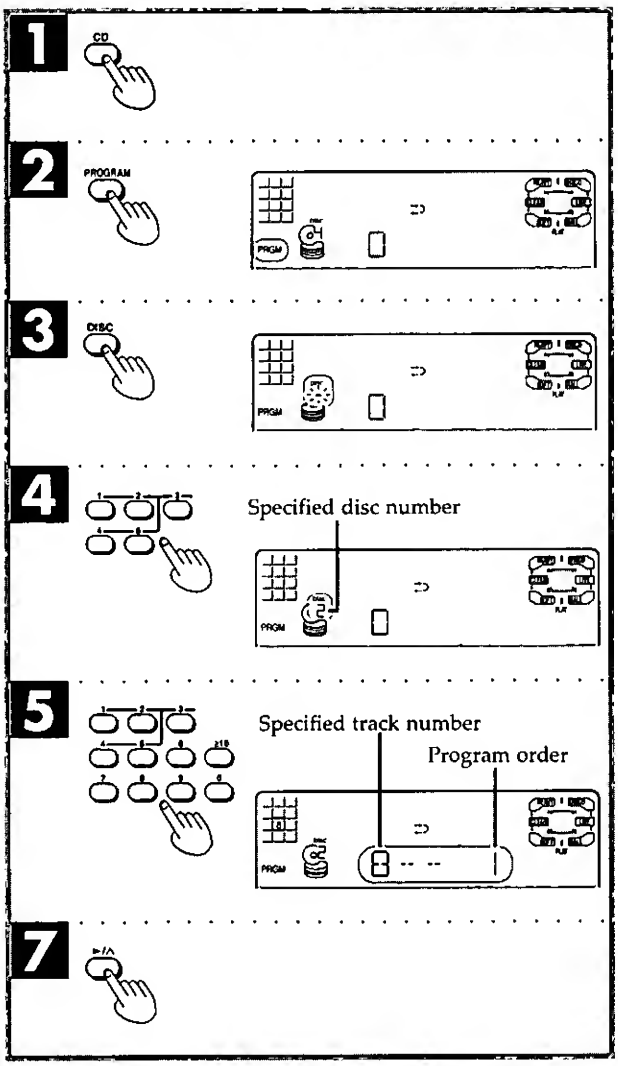
Press RANDOM. D
All tracks on the loaded CD will be played in random order. Playback will stop automatically when all tracks have been played.

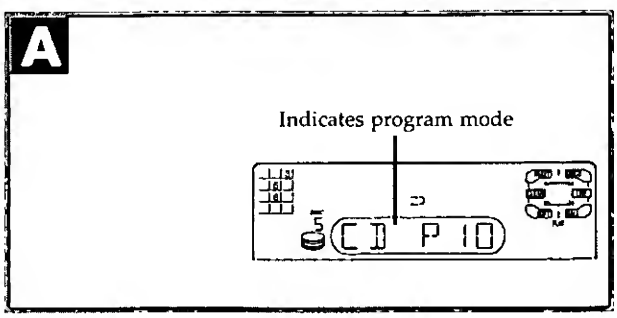
To cancel random play
Press RANDOM once again.

Note

You can use random play with your program. Only the programmed tracks will be played, but in random order.







Program play

by remote control only

You can program up to 24 tracks.

1 **Press CD.**

2 **Press PROGRAM.**

3 **Press DISC.**

4 (within 10 seconds or so)
Press 1–5, whichever disc you want.

5 **Press the numeric button to select the desired track.**

6 **Repeat steps 3 through 5 until you have programmed all the tracks you want.**

7 **Press ►.**
Play will start in the programmed sequence.

To cancel program play mode

Press PROGRAM in the stop mode.
Programmed contents will be saved in memory.
Pressing ■ will cancel program play, but it will also erase the entire program.

To select a two-digit track
Press ≥10 and then the two numbers you want.

For example:
Track no. 20: ≥10→2→0
Track no. 35: ≥10→3→5

When "CD FULL" appears
The number of programmed tracks is limited to 24. No further tracks can be programmed.

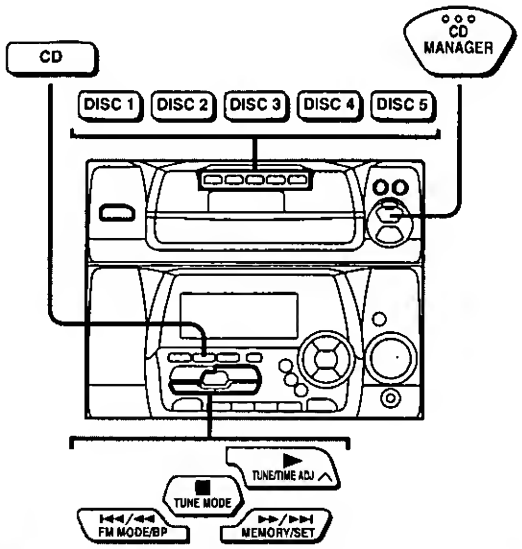
You can do the following during program mode A
- Check program contents.
  Press |◄◄/◄◄ or ►►|/►►.
  Everytime you press one of the buttons, the track and program No. are shown on the display.
- Add to the program.
  Repeat steps 3 through 5.
- Cancel entries.

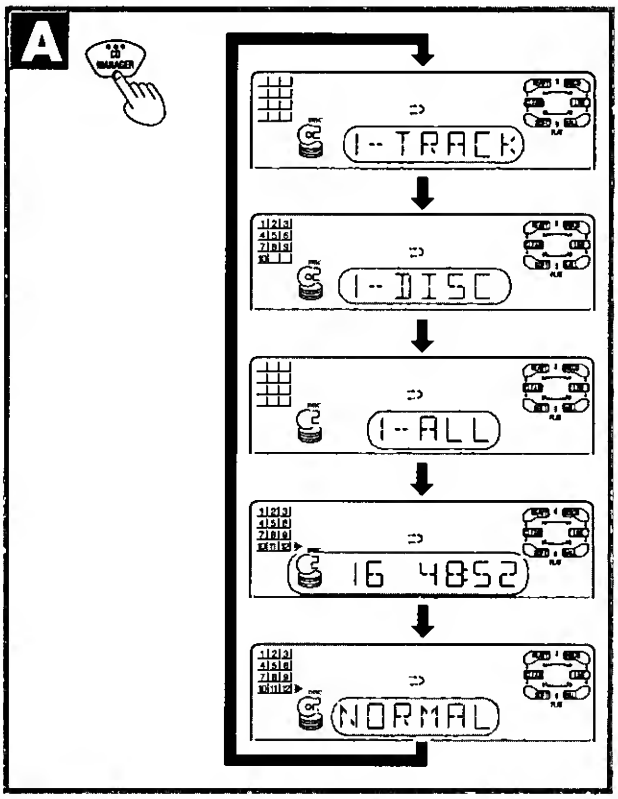
From the last programmed track	Press CANCEL.
A specified track only	Select the track with |◄◄/◄◄ or ►►|/►►|, and press CANCEL within 3 seconds.
All tracks	Press ■.

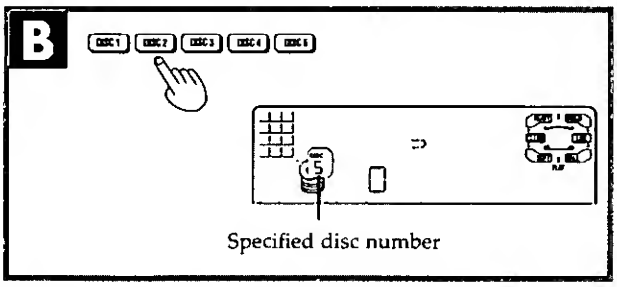
Memory retention
Your program is retained in memory for about 2 weeks while the system is unplugged.

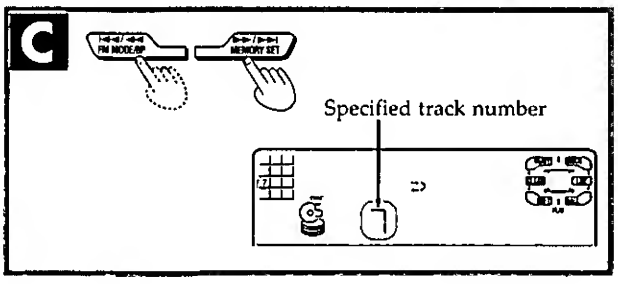
To replay your program
If you turned OFF your program with PROGRAM, you can play it again as explained below.
1. Press PROGRAM.
2. Press ►.

If you program a track not on your CDs
The track is initially programmed, but during program play, the player will skip that track and will continue playing from the next programmed item.









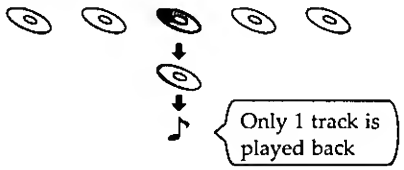
To listen to special CDs and tracks (CD Manager function)

This function makes it easier for you to select special CDs and tracks from amongst those loaded in the player.

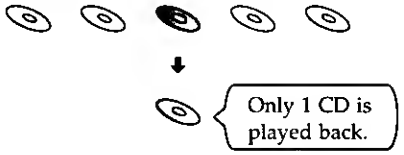
You can use this function to make recordings as well.

There are 3 CD/track selection modes.

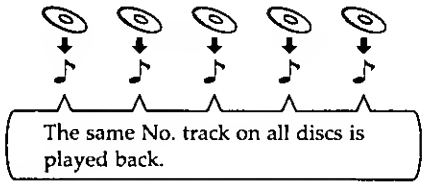
- For playing back 1 track only from all loaded CDs
  1-Track play mode (1-TRACK)



- For playing back 1 CD only from all loaded CDs
  1-Disc play mode (1-DISC)



- For playing back 1 track on all loaded CDs
  1-Track All-Disc play mode (1-ALL)



To listen to 1 track only (1-TRACK)

1 **Press CD.**

2 **Press CD MANAGER to select "1-TRACK".** A
Every time you press the button;

1-TRACK → 1-DISC → 1-ALL
↑ ↓
NORMAL ← Previous display
(OFF)

3 **Press DISC 1–DISC 5, whichever disc you want.** B

Note

The button lamp of the selected CD will not change color until playback starts.

4 **Press ⏮/◀◀ or ▶▶/⏭ to select the desired track.** C

5 **Press ▶.**
The selected track will start.

To listen to 1 CD only (1-DISC)

1 **Press CD.**

2 **Press CD MANAGER to select "1-DISC"** A
Every time you press the button;

1-TRACK → 1-DISC → 1-ALL
↑ ↓
NORMAL ← Previous display
(OFF)

3 **Press DISC 1–DISC 5, whichever disc you want.** B

Note

The button lamp of the selected CD will not change color until playback starts.

4 **Press ►.**
The selected CD will be played from the first track to the last.

To listen to the same numbered track on all CDs (1-ALL)

1 **Press CD.**

2 **Press CD MANAGER to select "1-ALL"** A
Every time you press the button;

1-TRACK → 1-DISC → 1-ALL
↑ ↓
NORMAL ← Previous display
(OFF)

3 **Press either ⏮/◄◄ or ►►/⏭ to select the desired track.** C

4 **Press ►.**
The same numbered track on CDs 1 through 5 will be played in order from CD 1 to CD 5.

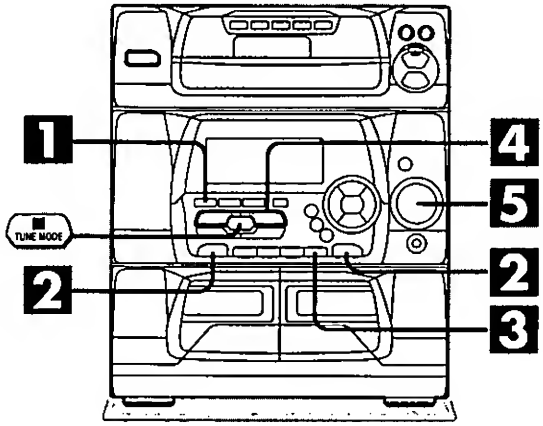
When playback ends
"NORMAL" will appear on the display for about 3 seconds, then the CD MANAGER function will turn OFF automatically.

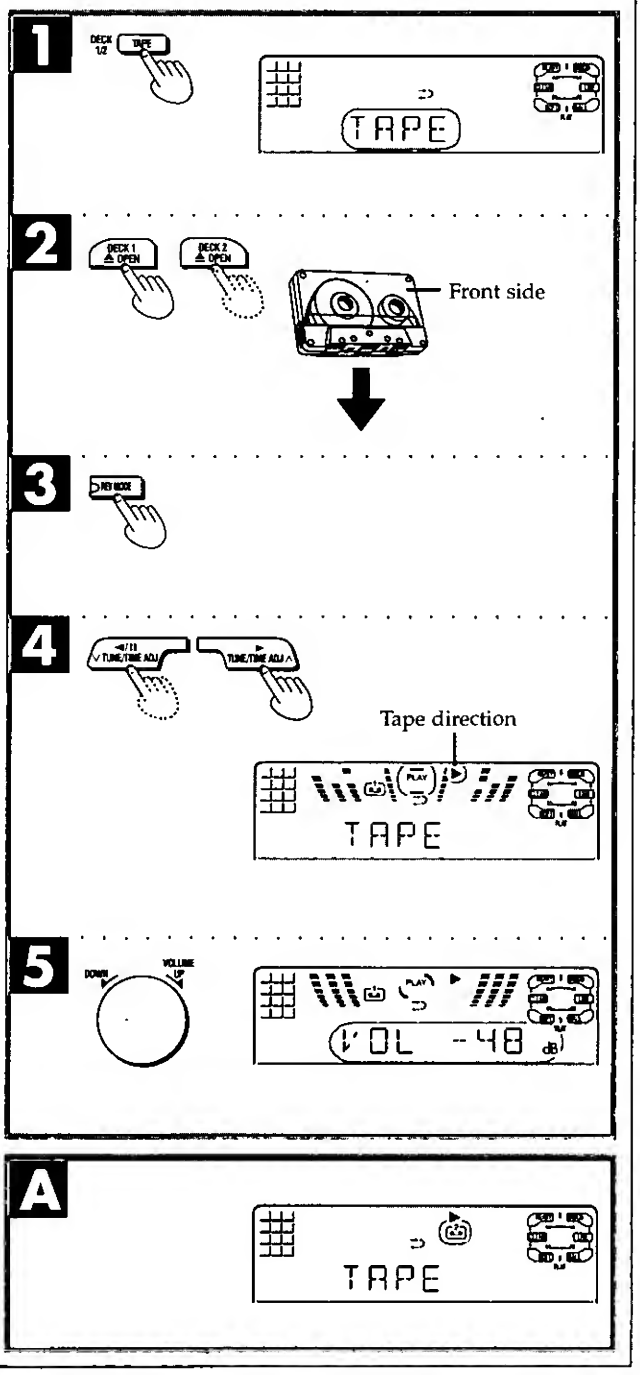
To stop play
Press ■.

When you select the wrong CD or track
- **1-TRACK play mode**
  To reselect a track on the same CD
  Press either ⏮/◄◄ or ►►/⏭ to select the track.
  To reselect a track on another CD **by remote control only**
  Press DISC on the remote control and, within 10 seconds, select a CD No. between 1 and 5. Then, select the track with the numeric buttons.
- **1-DISC play mode**
  Reselect a CD with DISC 1 – DISC 5.
- **1-ALL play mode**
  Reselect the track with the numeric buttons on the remote control.

Note

- You can use the repeat function (page 14) and random play (page 14) at the same time. However, only the repeat function is available for 1-TRACK play mode.
- During 1-ALL play mode, you cannot skip to a disc which has already finished.
- During 1-ALL play mode, if the selected track is not found on a certain CD, the player automatically skips that CD and continues playing from the next CD.





Listening to tapes

Type of tape which can be played correctly:
The unit automatically identifies the type of tape.

NORMAL POSITION/TYPE I	O
HIGH POSITION/TYPE II	O
METAL POSITION/TYPE IV	O

You can use either deck 1 or deck 2 for tape playback.

1 Press TAPE DECK 1/2.
The power will come on automatically.

2 Press DECK 1 ≙ OPEN or DECK 2 ≙ OPEN, and then insert the tape.
Insert the tape with the exposed tape facing down.
Close the holder by hand.

3 Press REV MODE to select the reverse mode.
Every time you press the button;
⇄ → ⇄⊃ → ⊂⇄⊃

⇄ : One side is played, then playback stops automatically.
⇄⊃ : Both sides (front side → reverse side) are played one time each, then playback stops automatically.
⊂⇄⊃: Both sides are played 8 times each, then playback stops automatically.

4 Press ◄ or ► to start playback.
►: The forward side (front side) will play.
◄: The reverse side will play.

5 Adjust the volume level.

To stop tape playback
Press ■.

To change the deck to be used A
Press TAPE DECK 1/2 to select the deck you want to use when you load cassettes into both decks.

To listen to 2 tapes consecutively
Load a tape into each deck and select ⊂⇄⊃. Both tapes will be played 8 times each.

Note
Playback is interrupted while playing back tapes, if you open the other deck.

One-touch play
When power is OFF, playing starts automatically when you press TAPE DECK 1/2.

To fast-forward or rewind the tape

Press ⏮/◀◀ or ▶▶/⏭ in the stop mode.

Tape direction	To rewind	To fast-forward
"▶"	⏮/◀◀	▶▶/⏭
"◀"	▶▶/⏭	⏮/◀◀

To find the beginning of a program (TPS: Tape Program Sensor)

Press ⏮/◀◀ or ▶▶/⏭ during play.

Tape direction	To play the current tune from the beginning	To play the next tune from the beginning
"▶"	⏮/◀◀	▶▶/⏭
"◀"	▶▶/⏭	⏮/◀◀

Note

The TPS function searches for silent parts of about 4 seconds in length which are normally found between tunes. As a result, it may not function properly in the following cases

- With short silent parts
- When noise occurs between tunes
- With silent parts found within tunes

Before recording (Deck 2 only)

Type of tape which can be recorded correctly

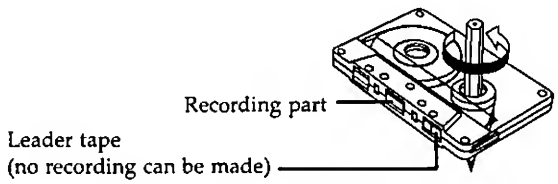
The unit automatically identifies the type of tape.

NORMAL POSITION/TYPE I	O
HIGH POSITION/TYPE II	O
METAL POSITION/TYPE IV	×

This system cannot make a recording or erasing correctly, if metal position tapes are used.

To record from the beginning of the tape

You cannot record on the leader part of the tape. Before recording, wind the tape past the leader to a point where recording can start immediately.



How volume, sound quality/field and V. BASS effect recording

The tape you are recording is not effected whatsoever by changes in volume, sound quality/field or V. BASS.

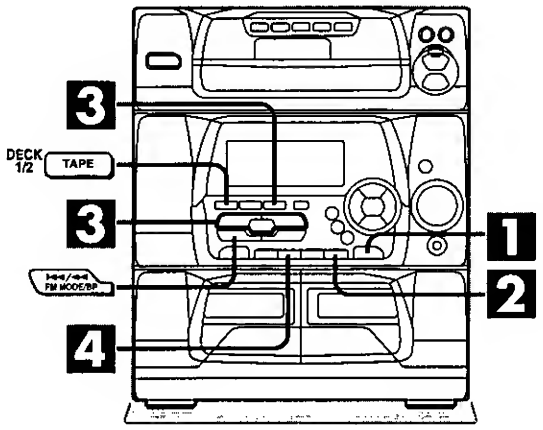
- In recording, sound quality/field are set automatically to "FLAT".
- You can change volume and V. BASS effect for the playback sound.

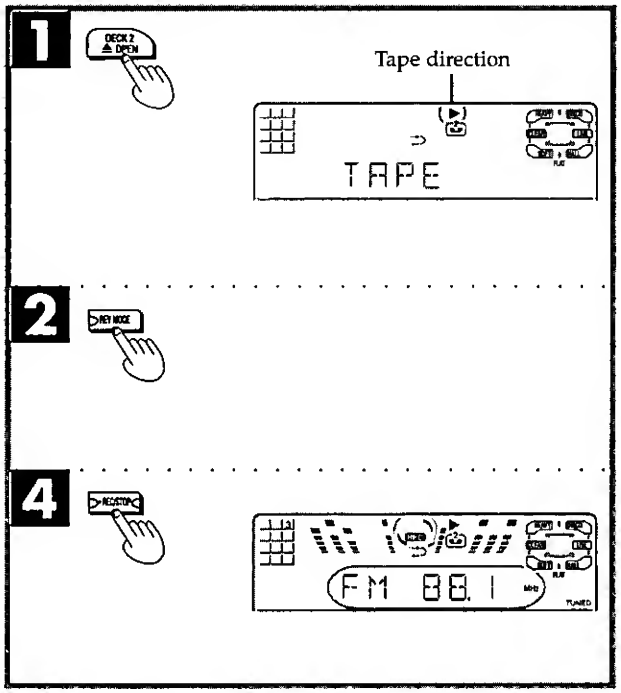
To erase a recorded sound

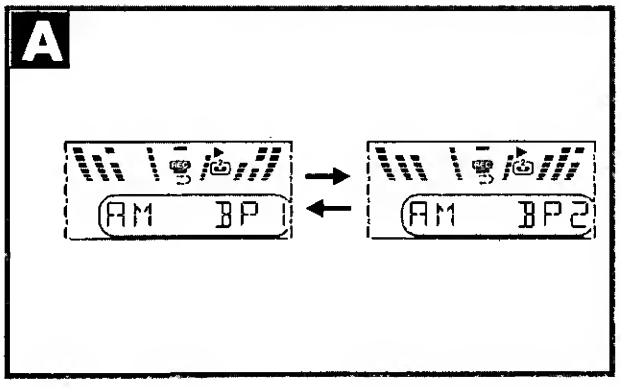
1. Press TAPE DECK 1/2.
2. Insert the recorded tape into deck 2.
3. Press REV MODE to select reverse mode.
4. Press ●REC/STOP.

Note

- You cannot open the deck 1 while recording.
- You cannot fast-forward or rewind one deck while recording with the other.







Recording from radio broadcasts

1 Press DECK 2 ≜ OPEN, and then insert the tape.
Close the holder by hand.
Tape direction is automatically set to "►".

2 Press REV MODE to select the reverse mode.
Every time you press the button;
⇄ → ⇄⊃ → ⊂⇄⊃

⇄ : One side is recorded, then recording stops automatically.
⇄⊃, ⊂⇄⊃: Both sides (front side → reverse side) are recorded, then recording stops automatically.

3 Select a radio station. Perform steps 1 through 3 on page 11.

4 Press •REC/STOP to start recording.
If you selected ⊂⇄⊃ in step 2, the direction will automatically change to ⇄⊃ when recording starts.

To stop recording
Press •REC/STOP again.
Recording can also be stopped by pressing ■.

To start recording on reverse side
Load a tape and change the tape direction as explained here below.
1. Press TAPE DECK 1/2 and select tape deck 2.
2. Press ◄ and immediately thereafter ■. The tape direction will be shown as "◄".

To record from a specific point on a tape
Before recording, advance the tape to the point from where you want to start recording.

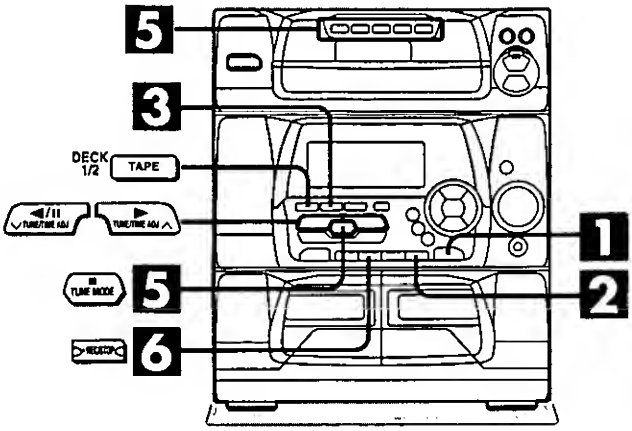
To cut an unnecessary part while recording
1. Press •REC/STOP when hearing an unnecessary part. The cassette deck will go into the stop mode.
2. Press •REC/STOP when wanting resume recording again. Recording will continue in the same direction as before.

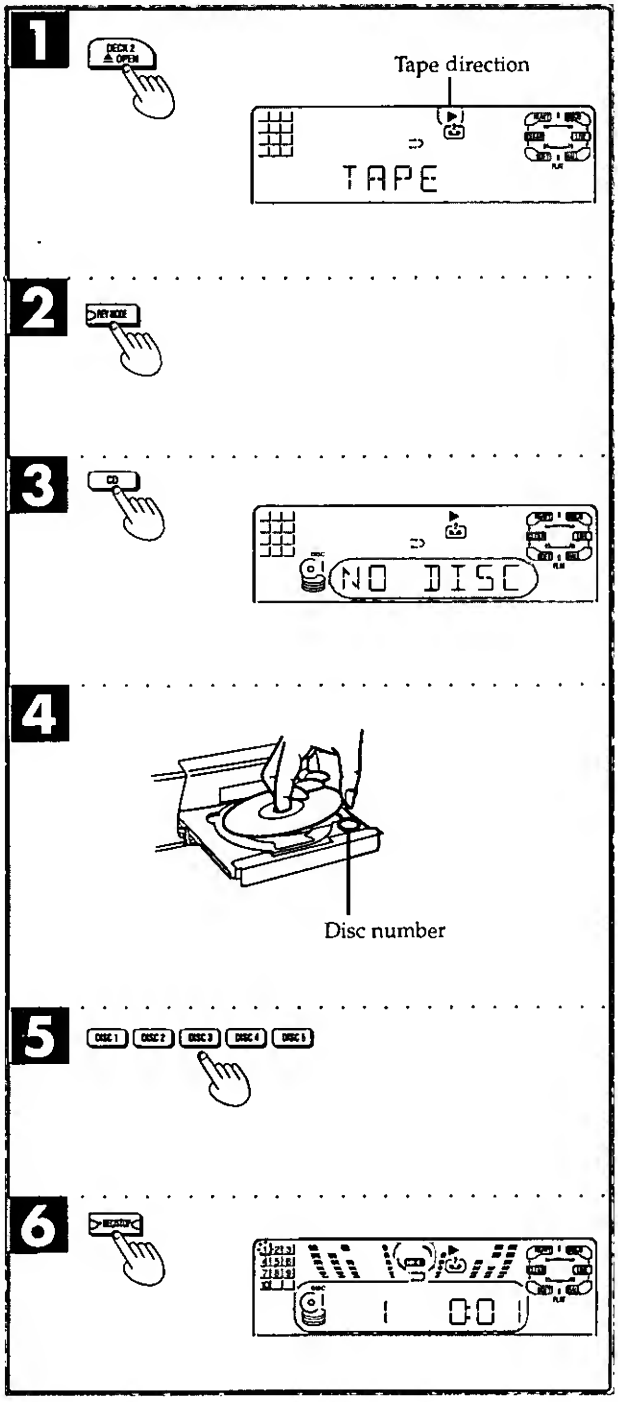
Note
When recording an AM broadcast, volume is momentarily interrupted when you start and stop the recording.

To reduce the noise while AM recording (Beat proof function) A

Press FM MODE/BP while recording.
Each time you press the button, BP 1 and BP 2 will be displayed alternately.
Select the position where there is less noise.

Recording from compact discs





1 Press DECK 2 ≙ OPEN, and then insert the tape.
Close the holder by hand.
Tape direction is automatically set to "►".

2 Press REV MODE to select the reverse mode.
Every time you press the button;
⇄ → ⇄⊃ → ⊂⇄⊃

⇄ : One side is recorded, then recording stops automatically.
⇄⊃, ⊂⇄⊃ : Both sides (front side → reverse side) are recorded, then recording stops automatically.

3 Press CD.

4 Load CDs into each of the trays.
(See page 12).

5 Press DISC 1 – DISC 5 whichever disc you want.
Pressing ■ will stop playback.

6 Press ●REC/STOP to start recording
- If you selected ⊂⇄⊃ in step 2, the direction will automatically change to ⇄⊃ when recording starts.
- The recording will proceed from the first track on the selected CD and will continue on through the last track of the final disc (page 13).
- The tape deck stops automatically when the CD is finished.

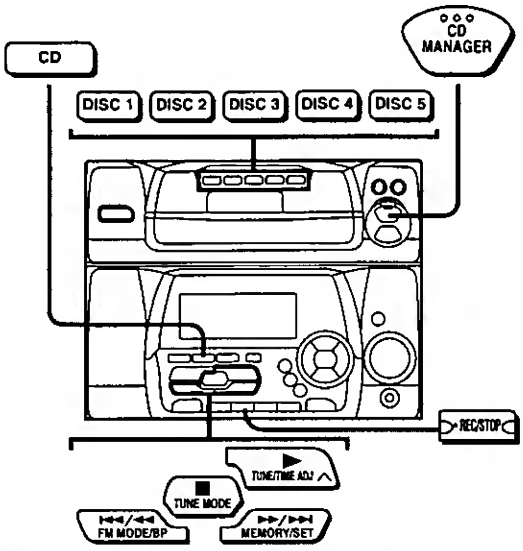
To stop recording
- To add a 4 second silent interval before stopping.
  Press ■. The CD will stop automatically too.
- To stop recording without a silent interval
  Press ●REC/STOP. The CD will stop automatically too.

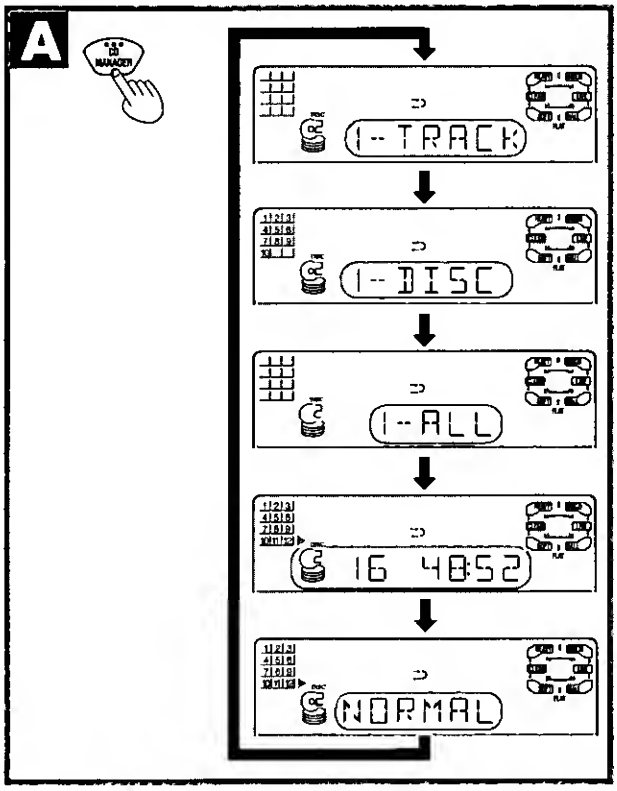
To start recording on reverse side
Load a tape and change the tape direction as explained here below.
1. Press TAPE DECK 1/2 and select tape deck 2.
2. Press ◄ and immediately thereafter ■. The tape direction will be shown as "◄".

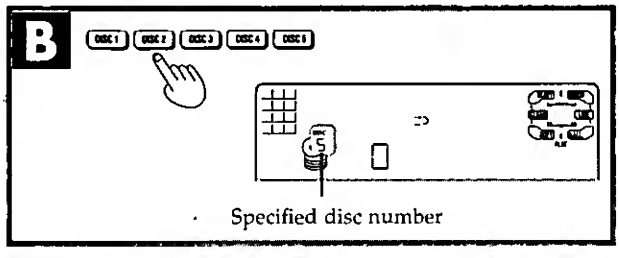
To record from a specific point on a tape
Before recording, advance the tape to the point from where you want to start recording.

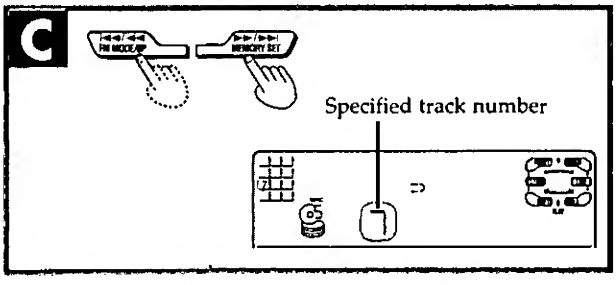
To record programmed tracks

1. After step 4, program the track you want (performs steps 2–6 on page 15.)
2. Press ●REC/STOP to start recording.





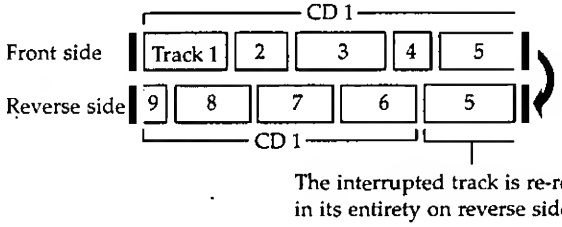




To record special CDs and tracks (CD Manager function)

This function makes it easier for you to select special CDs and tracks from amongst those loaded in the player.

- While recording, if a track is cut off in the middle at the end of the front side, it is re-recorded from the beginning, on the reverse side.



- Recording is interrupted definitively at the end of reverse side.

Before recording

Prepare the tape you want to use. Performs steps 1 through 3 on page 21.

To record 1 track only (1-TRACK)

1 **Press CD.**

2 **Press CD MANAGER to select "1-TRACK". A**
Every time you press the button;

1-TRACK → 1-DISC → 1-ALL
↑ ↓
NORMAL ← Previous display
(OFF)

3 **Press DISC 1–DISC 5, whichever disc you want. B**

Note
The button lamp of the selected CD will not change color until playback starts.

4 **Press ⏮/◀◀ or ▶▶/⏭ to select the desired track. C**

5 **Press ●REC/STOP.**
The selected track will be recorded.

To record 1 CD only (1-DISC)

1 **Press CD.**

2 **Press CD MANAGER to select "1-DISC"** A
Every time you press the button;

1-TRACK → 1-DISC → 1-ALL
↑ ↓
NORMAL ← Previous display
(OFF)

3 **Press DISC 1–DISC 5, whichever disc you want.** B

Note
The button lamp of the selected CD will not change color until playback starts.

4 **Press •REC/STOP.**
The selected CD will be recorded.

To record the same numbered track on all CDs (1-ALL)

1 **Press CD.**

2 **Press CD MANAGER to select "1-ALL"** A
Every time you press the button;

1-TRACK → 1-DISC → 1-ALL
↑ ↓
NORMAL ← Previous display
(OFF)

3 **Press ⏮/◀◀ or ▶▶/⏭ to select the desired track.** C

4 **Press •REC/STOP.**
The same numbered track on CDs 1 through 5 will be recorded in order from CD 1 to CD 5.

When recording ends
"NORMAL" will appear on the display for about 3 seconds, then the CD MANAGER function will turn OFF automatically.

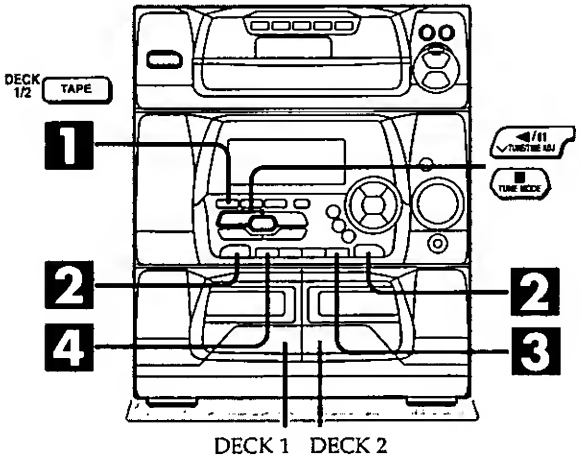
To stop recording
- To add a 4 second silent interval before stopping
  Press ■. The CD will automatically stop too.
- To stop recording without a silent interval
  Press •REC/STOP. The CD will stop automatically too.

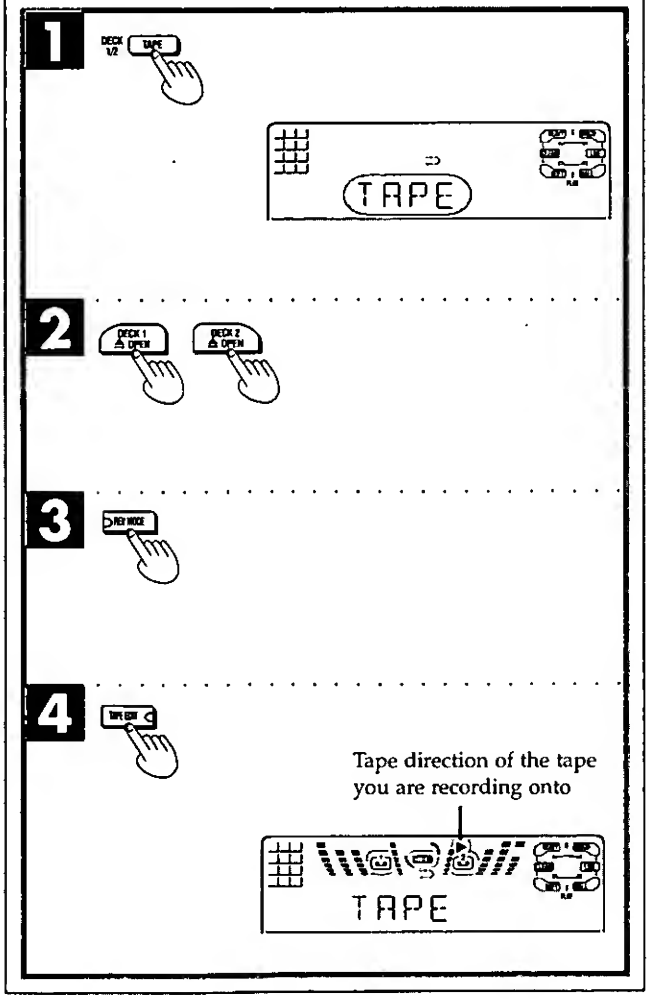
When you select the wrong CD or track
The same reselection procedure is used with all three modes. Perform this procedure before recording starts.

To reselect a CD
Reselect the CD with DISC 1 ~ DISC 5.

To reselect a track
Reselect the track with ⏮/◀◀ and ▶▶/⏭.

For your reference
During 1-ALL recording mode, if the selected track is not found on a certain CD, the player automatically skips that CD and continues recording from the next CD.





Tape-to-tape recording

The recording level will be recorded as they are on the tape being played back.

1 Press TAPE DECK 1/2.

2 Press ≙ OPEN on both decks, and then insert the tapes.

For playback: Into deck 1
For recording: Into deck 2
Close each deck's holder by hand.
Tape direction is automatically set to "►".

3 Press REV MODE to select the reverse mode.

Every time you press the button;
⇄ → ⇄⊃ → ⊂⇄⊃

⇄ : One side is recorded, then recording stops automatically.
⇄⊃, ⊂⇄⊃: Both sides (front side → reverse side) are recorded, then recording stops automatically.

4 Press TAPE EDIT to start recording.

• If you selected ⊂⇄⊃ in step 3, the direction will automatically change to ⇄⊃ when recording starts.

To stop recording:

Press ■.
Both decks will stop.

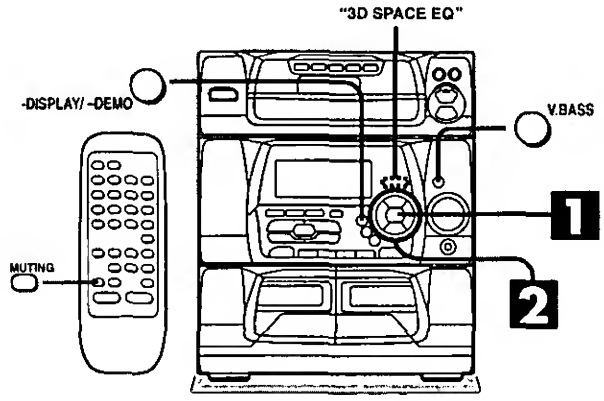
To start recording on side B

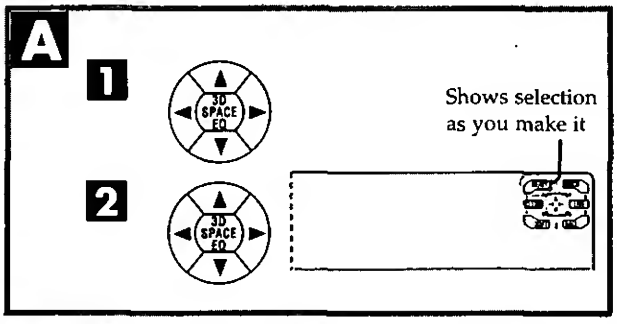
Load a tape and change the tape direction as explained here below.

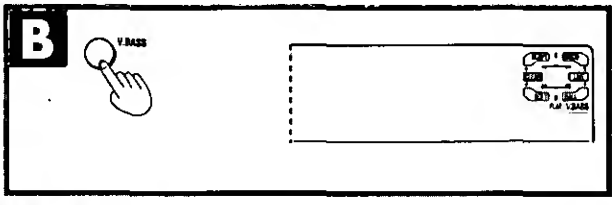
1. Press TAPE DECK 1/2 and select tape deck 2.
2. Press ◄ and immediately thereafter ■. The tape direction will be shown as "◄".

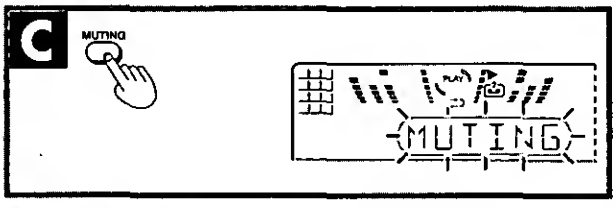
To record from a specific point on a tape

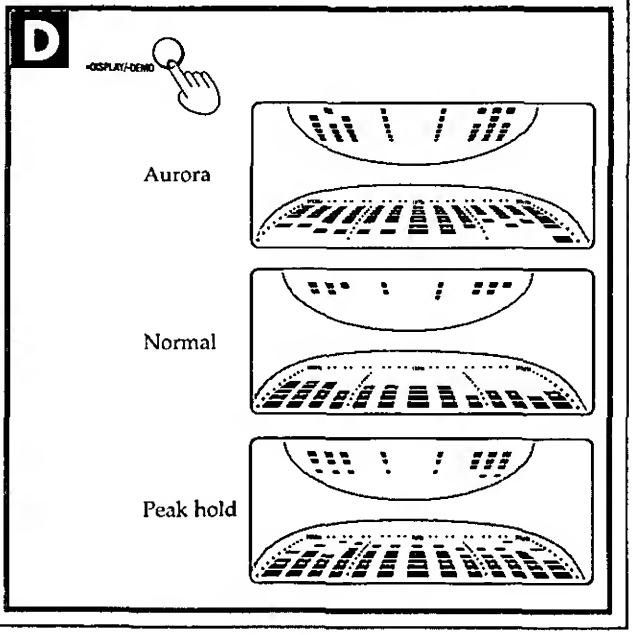
Before recording, advance the tape to the point from where you want to start recording.











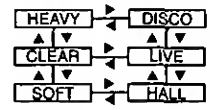
Sound quality, field, etc.

Selecting sound quality and field A

Base your selection on the type of music and how you want to listen to it.

1 **Press 3D SPACE EQ.**
"FLAT" goes out.

2 **Select sound quality and field with ◀, ▶, ▼ and ▲.**
Rotation changes with each button as shown below.



HEAVY: Use to add "punch" to rock and other music.
CLEAR: Use to clarify the treble range of jazz, etc.
SOFT: Use to listen to background music, etc.
DISCO: Use to reproduce a long reverberating sound like that heard in discotheques.
LIVE: Use primarily for vocal pieces to add gloss to the vocals.
HALL: Use to impart a deep bass and spread which will make you feel as if you were in a large concert hall.

Note

In recording, the sound quality/field will set automatically to "FLAT".

To cancel the mode:
Press 3D SPACE EQ and check "FLAT" lights up.

Adding bass B

Press V. BASS.
Press the button again to cancel.
"V. BASS" goes out.

Note

You cannot record V.BASS effect, but you can use it for playback sound.

To mute the volume C

by remote control only

This feature is convenient when you have a telephone call, etc.

Press MUTING.
Press the button again to cancel.
"MUTING" goes out.
Muting can also be cancelled by lowering the volume all the way (-∞dB).

When the system is turned off, the muting operation will be automatically cancelled.

Switching displays D

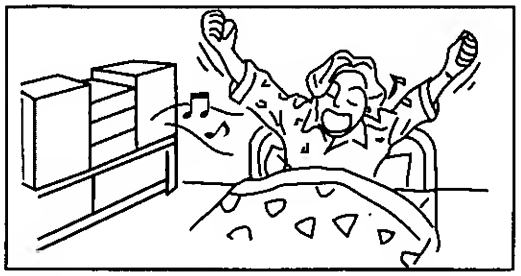
Press DISPLAY/DEMO.
Every time you press the button, the spectrum analyzer will change as shown on the left.

Timers

This system has 3 timers: Play Timer, Record Timer, Sleep Timer.

Play Timer (⏲PLAY)

Select this timer when you want to use the timer as an alarm clock. You can wake up with listening to music (CD, tuner, tape or aux) at a desired volume level and time.

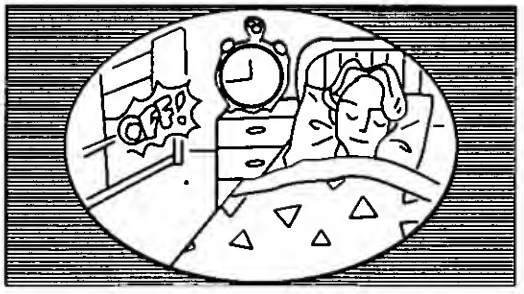


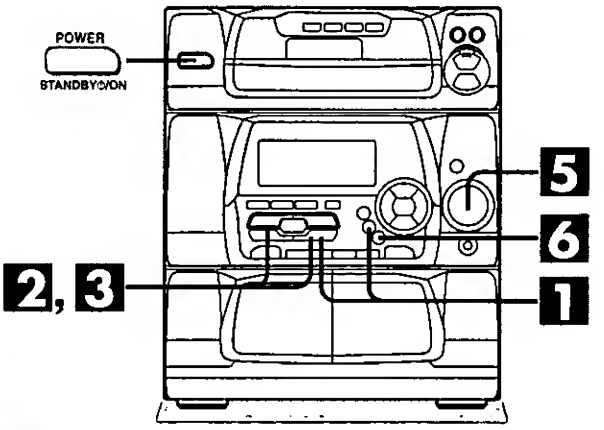
Record Timer (⏲REC)

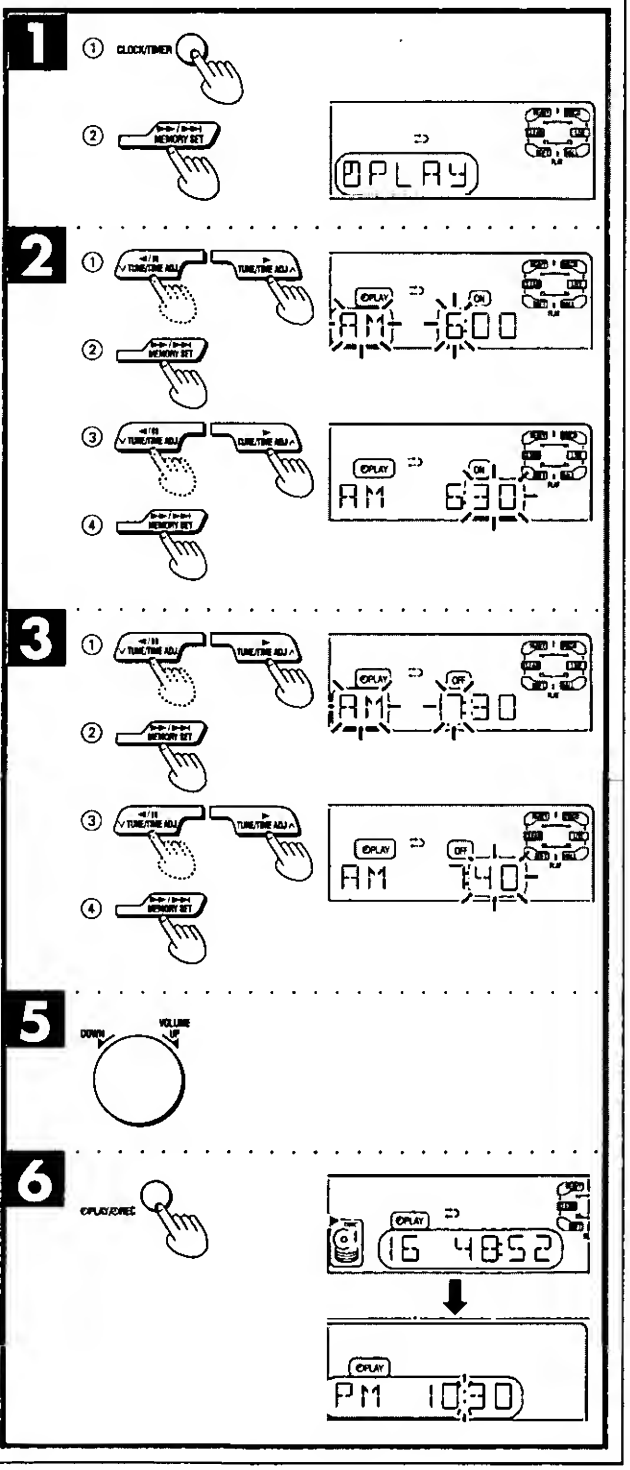
Select this timer when you want to use the timer to record a midnight program or while you are out.

Sleep Timer (SLEEP)

This timer turns power to your system OFF at the set time (Max. 2 hours, settable at 30 minute mark). It lets you fall asleep while listening to music.







Using the play timer

Preparations

- Make sure that you have completed "Setting the time" on page 9.
- Switch on the power.

The following example in the figure shows how to set the play timer for playing a CD from 6:30 a.m. to 7:40 a.m.

1 Press CLOCK/TIMER to select "⏲PLAY".

① Every time you press the button;

CLOCK → ⏲REC → ⏲PLAY
↑— Previous display ←—

② (Within 10 seconds or so)
Press MEMORY/SET.

2 "ON" time setting

① Press ∨ or ∧ to select the starting hour.
② Press MEMORY/SET.
③ Press ∨ or ∧ to select the starting minutes.
④ Press MEMORY/SET.

3 "OFF" time setting

① Press ∨ or ∧ to select the ending hour.
② Press MEMORY/SET.
③ Press ∨ or ∧ to select the ending minutes.
④ Press MEMORY/SET.

4 Source selection

Select the desired source and then prepare for playing.

When you play CD(s)
Press CD and insert CD(s).
If more than 1 CD is loaded
Press DISC 1 – DISC 5 to select the CD you want to hear first, and press ■.

When you play tape(s)
Press TAPE DECK 1/2 and insert tape(s).
If tapes are loaded in both decks, playback will start from deck 2.

When you play the radio
Press TUNER BAND and tune in the desired station.

When you play a unit connected to the "AUX" terminals
Press AUX.

5 Play volume setting

Set the playback volume.

6 Press ⏲PLAY/⏲REC to select "⏲PLAY".

Every time you press the button;

⏲REC ——→ ⏲PLAY
↑— Out (OFF) ←—

Power will shut OFF automatically in a few seconds.

The timer play will start at the preset time with volume increasing gradually up to the volume level you preset.

To switch the timer OFF:
Press ⏲PLAY/⏲REC and check "⏲PLAY" goes out.

If you set the timer wrongly
Press ⏲PLAY/⏲REC so that "⏲PLAY" goes out. Then, repeat the procedure from step 1.

To check settings
Press CLOCK/TIMER to select "⏲PLAY".
Two seconds later, the display will change in the following order.
① Play start time
② Play over time
③ Play source and playback volume

You can check settings even when power is OFF.

To enjoy the desired source after the timer setting is completed
Even if you change the volume level or music source, the timer play will start with the preset condition.

1. Following step 6, turn ON the power and start playing the desired source.

   Note

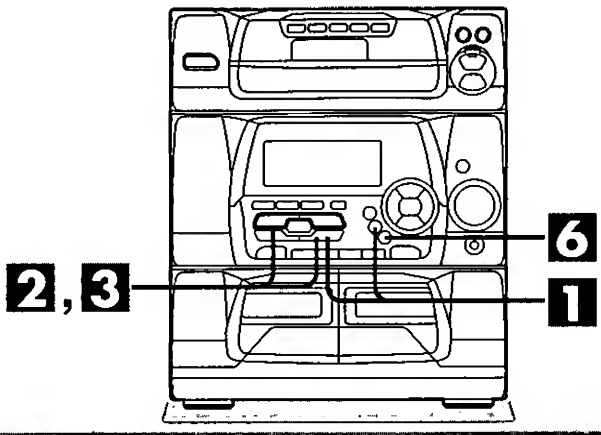
   When you select a CD as the program source
   After the CD finishes, if more than 2 CDs are loaded in the player, reset the programmed CD with DISC 1 ~ DISC 5, and press ■.

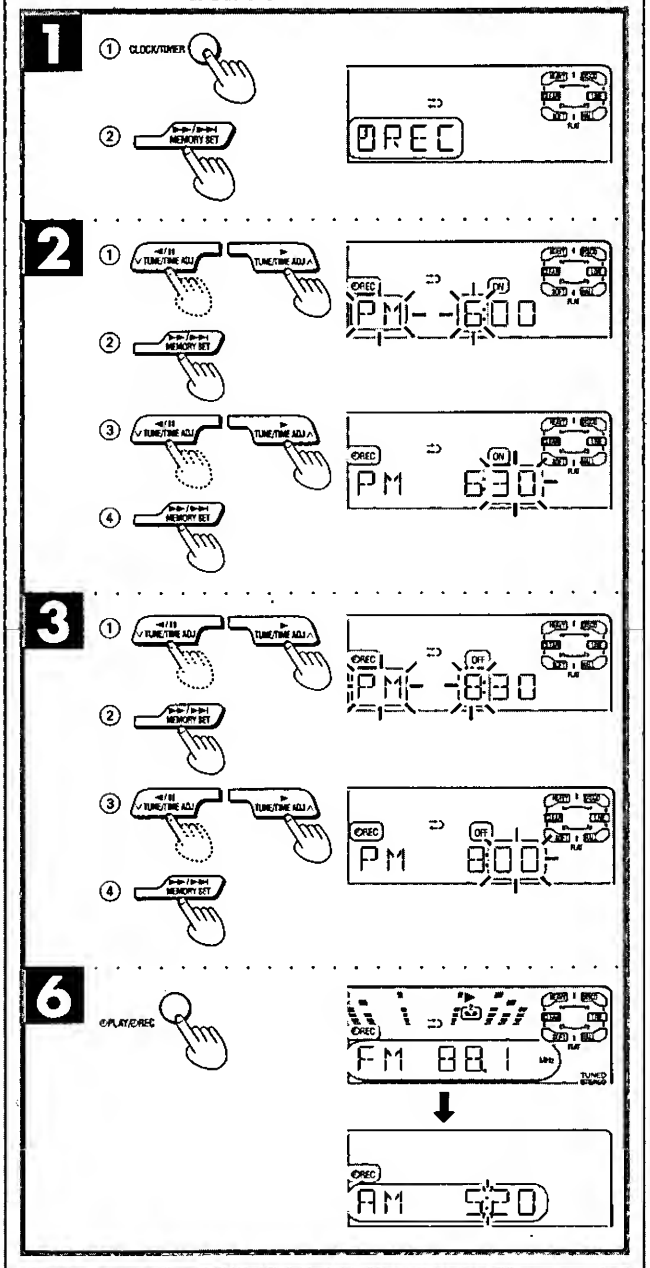
2. Press POWER to standby mode after enjoying the play, and confirm CD(s) or tape(s) has (have) been inserted.

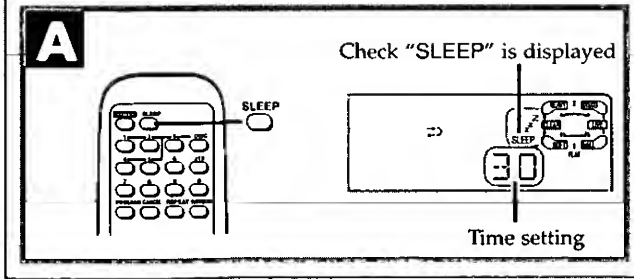
Turning the timer ON/OFF
As long as "⏲PLAY" is displayed, the play timer will come ON everyday as set.
You can turn the timer ON/OFF by pressing ⏲PLAY/⏲REC while power is OFF.
Remember that when "⏲PLAY" is displayed, the timer is ON. When not displayed, the timer is OFF.

Note

- If the power is on, the timer will not function. The system must be in the standby mode.
- If you switch the power to the standby mode while the play timer is functioning, the OFF time setting will not be activated.
- If AUX is selected as the source, when the timer comes ON, the system will turn ON and will engage "AUX" as the source. If you want playback from the connected component to start, set the component's timer to the same time. (See the instruction manual that came with the component.)







Using the record timer

Preparations

- Make sure that you have completed "Setting the time" on page 9.
- Switch on the power.

Set the timer at least 2 minutes before you want to start recording.

The following example in the figure shows how to set the record timer for recording FM broadcasts from 6:30 p.m. to 8:00 p.m.

1 Press CLOCK/TIMER to select "⊙REC".

① Every time you press the button;

CLOCK → ⊙REC → ⊙PLAY
↑— Previous display ←—

② **(Within 10 seconds or so)**
Press MEMORY/SET.

2 "ON" time setting

① **Press ∨ or ∧ to select the starting hour.**
② **Press MEMORY/SET.**
③ **Press ∨ or ∧ to select the starting minutes.**
④ **Press MEMORY/SET.**

3 "OFF" time setting

① **Press ∨ or ∧ to select the ending hour.**
② **Press MEMORY/SET.**
③ **Press ∨ or ∧ to select the ending minutes.**
④ **Press MEMORY/SET.**

4 Source selection

Select the desired source and then prepare for recording.

When you record from the radio
Press TUNER BAND to select "FM" or "AM" and tune in the desired station.
When you record from a unit connected to the "AUX" terminals
Press AUX.

5 Prepare for recording.

1. Insert a tape into deck 2 with the side on which the recording will start facing you.
2. Select the reverse mode.

6 Press ⊙PLAY/⊙REC to select "⊙REC".

Every time you press the button;
⊙REC → ⊙PLAY
↑— (OFF) ←—

Power will shut OFF automatically in a few seconds.

About 30 seconds before the set time, the stereo mutes all sound automatically. Recording will start from front side ("►")

To switch the timer OFF:
Press ⏲PLAY/⏲REC and check "⏲REC" goes out.

If you set the timer wrongly
Press ⏲PLAY/⏲REC so that "⏲REC" goes out. Then, repeat the procedure from step 1.

To check settings
Press CLOCK/TIMER to select "⏲REC".
Two seconds later, the display will change in the following order.
① Recording start time
② Recording over time
③ Recording source

You can check settings even when power is OFF.

To enjoy the desired source after the timer setting is completed.
Even if you change the music source, the timer recording will start with the preset condition.
1. Following step 6, turn ON the power and start playing the desired source.
2. Press POWER to standby mode after enjoying the play, and confirm a tape is inserted in deck 2.

Turning the timer ON/OFF
As long as "⏲REC" is displayed, the record timer will come ON everyday as set.
You can turn the timer ON/OFF by pressing "⏲PLAY/⏲REC" while power is OFF.
Remember that when "⏲REC" is displayed, the timer is ON. When not displayed, the timer is OFF.

Note
- If the power is ON, the timer will not function. The system must be in the standby mode.
- If you switch the power to the standby mode while the record timer is functioning, the OFF time setting will not be activated.
- If AUX is selected as the source, when the timer comes ON, the system will turn ON, will engage "AUX" as the source and will start recording. If you want to record from the connected component, set the component's timer to the same time. (See the instruction manual that came with the component.)

Using the sleep timer

by remote control only

Preparations

- Make sure that you have completed "Setting the time" on page 9.
- Switch on the power.

The following example in the figure shows how to set the system to standby mode after 30 minutes.

While enjoying the desired source:
Press SLEEP to select the desired time. **A1**

Every time you press the button;

→ 30 → 60 → 90 → 120 → OFF

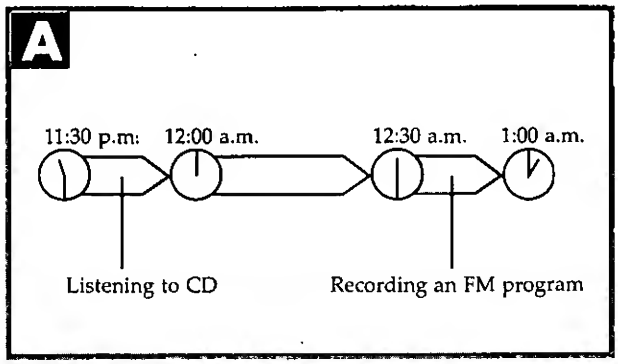
The system is turned off after the set time has elapsed.

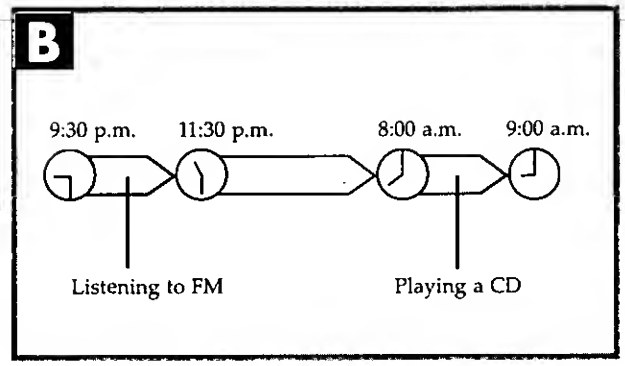
To cancel the sleep timer:
Press SLEEP to select "OFF".

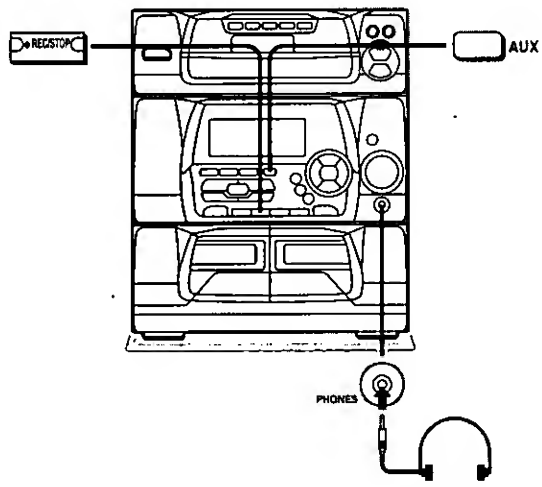
To confirm the remaining time:
(only while power is ON)
Press SLEEP.

To change the time remaining during operation:
Press SLEEP to show the remaining time then press SLEEP to select the desired time.

Note
The sleep timer turns OFF automatically the moment you attempt to record a CD using CD Manager function.







Headphones
(not included)

To use two timers together

The sleep timer always has priority.
Be sure not to overlap timer settings.

Record timer and sleep timer A
To go to sleep listening to a compact disc, and then to make a timer recording from a radio broadcast.
① Program the record timer.
Follow steps 1–6 on page 28.
② Switch on the power.
③ Start your CD and set the volume.
④ Set the sleep timer (page 29).

Be sure to set the sleep timer to off before the timer recording begins.

Play timer and sleep timer B
To go to sleep listening to an FM broadcast, and wake up the next morning listening to a compact disc.
① Program a CD for play timer.
Follow steps 1–6 on page 27.
② Switch on the power.
③ Tune in the station and set the volume.
④ Set the sleep timer (page 29).

For your reference
The play timer cannot be used in combination with the record timer.

Using an external unit

Listening to an external source

(See page 7 for external unit connection)

1. Press AUX.
The power will come on automatically.
2. Start playback from the external source. (For details, refer to the owner's manual of the equipment.)

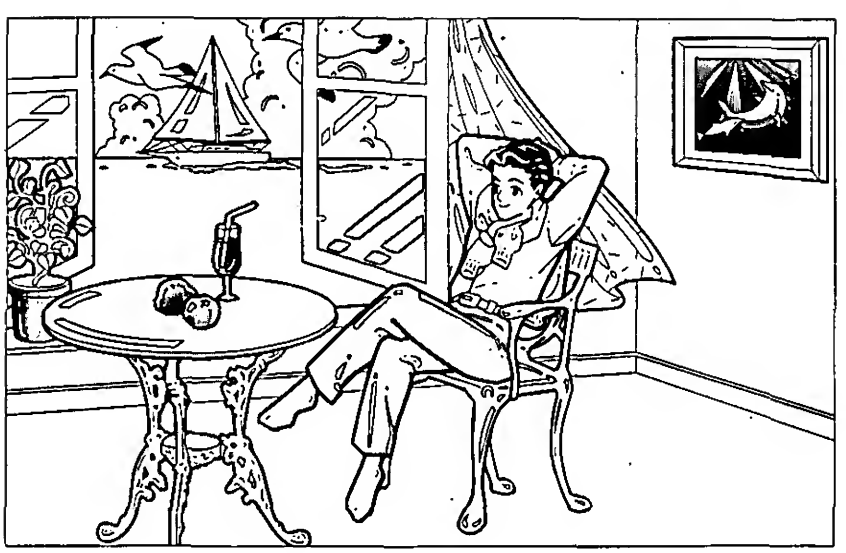
Recording from an external source

1. Follow steps 1–2 on page 20.
2. Press AUX.
3. Press ●REC/STOP (recording starts).
4. Start playback from the external source. (For details, refer to the owner's manual of the equipment.)

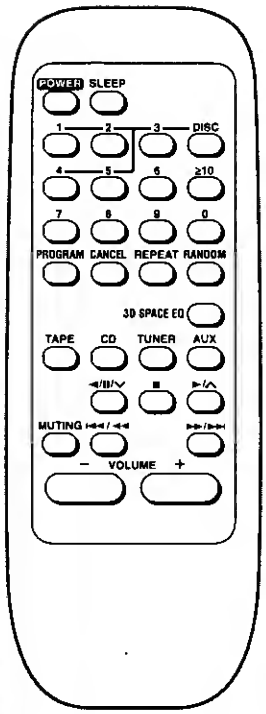
Listening with headphones

Reduce the volume level, and connect the headphones.
Plug type: 3.5 mm (1/8 in) stereo

Note
Avoid listening for prolonged periods of time to prevent hearing damage.

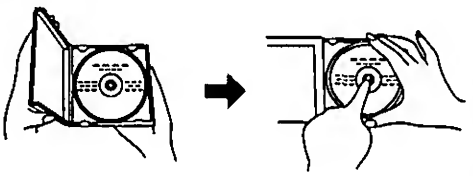


Reference pages given as black circled numbers.



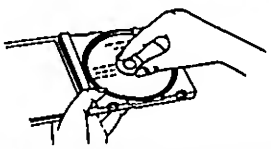
Button \ Source	Radio	CD	Tape	Other component
POWER	Turns the unit ON/OFF.			
SLEEP	For setting sleep timer 29			—
►/∧	For station selection (∨, ∧) (In PRESET mode) 11	Playback (►) 13	Playback (◄, ►) 18	—
◄/II/∨		Pause (II) 13		—
■	—	Stop 13, 18		—
◄◄/◄◄ ►►/►►I	—	•Searching forward/backward 13 •Skipping forward/backward 13	•Fast-forward/Rewind (While stopped) •Finding the beginning of a tune 19	—
1 2 3 DISC 4 5 6 ≥10 7 8 9 0	For station selection (In PRESET mode) 11	•CD selection (1~5) •Track selection 14, 15, 17	—	—
DISC	—	CD select mode 14, 15, 17	—	—
PROGRAM	—	Engages program input. 15	—	—
CANCEL	—	Cancels program contents. 15	—	—
REPEAT	—	For selecting repeat playback mode 14	—	—
RANDOM	—	Random playback 14	—	—
TUNER / CD / TAPE / AUX	Input source selection 11, 13, 18, 30 •When power OFF One-touch playback begins by pressing TUNER, CD or TAPE. •When power ON Band can be switched with TUNER, and tape deck switched with TAPE.			
3D SPACE EQ	Sound quality/field ON/OFF and selection 25			
MUTING	Mutes volume temporarily. 25			
− VOLUME +	For setting volume 11			

A How to remove CDs



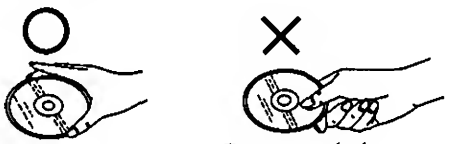
Press on center piece and lift from both sides.

B How to return CDs to their case



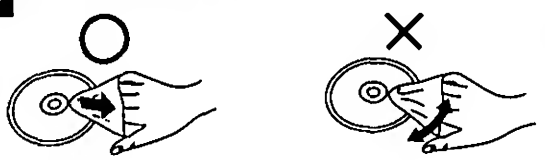
Face label upwards and press downward from above.

C How to hold CDs



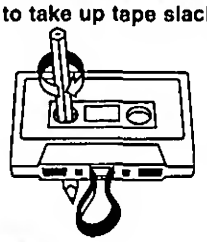
Do not touch the recorded surface

D How to clean CDs



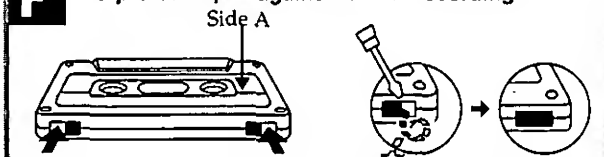
Wipe from inside outward.

E How to take up tape slack



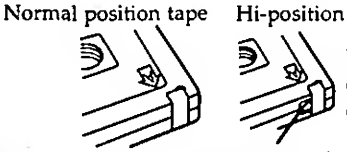
Use a pencil or similar object to take up the slack.

F To protect tapes against further recording



Use a screwdriver or similar object to break out the tab.

To re-record on a protected cassette
Cover the hole with adhesive tape



Do not cover the discrimination hole on hi-position tapes

Concerning compact discs

With this player, you can only play compact discs having this mark.

COMPACT disc DIGITAL AUDIO

Handling precautions

Handle CDs as shown on the left (A ~ D).

- If you are taking the disc from a cold to a warm environment, moisture may form on the disc. Wipe this off with a soft, dry, lint-free cloth before using the disc.
- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.

Storage precautions

Be sure to store discs in their cases to protect them from dust, scratches, and warping.

Do not place or store discs in the following places

- Locations exposed to direct sunlight
- Humid or dusty locations
- Locations directly exposed to a heat vent or heating appliance
- In the glove compartment or on the rear deck of an automobile

Concerning cassette tapes

Selection of cassette tapes

Tapes can get caught on the capstans. Use caution with the following types of tapes.

Cassette tapes exceeding 100 minutes
Tapes are made of a thin film material. Do not repeatedly advance and stop the tape, fast-forward it or rewind it.

Endless-tapes
For this unit, it is recommended to use the tape which is appropriate to the auto reverse mechanism.

Always read the instructions provided with your tapes.

Tape slack E

Tape slack may cause the tape to break.

Erasure prevention F

Storage precautions

Do not place or store tapes in the following places;

- In high temperature (35°C or higher) or high humidity (80% or higher) areas
- In a strong magnetic field (near a speaker, on top of a TV, etc.) This can erase a recording.
- Locations exposed to direct sunlight

Troubleshooting guide

Before requesting service for this unit, check the chart below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation.

If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to the directory of Authorized Service Centers (enclosed with this unit) to locate a convenient service center, or consult your dealer for instructions. (In U.S.A. consult MSC Authorized Servicenters for detailed instructions or call 1-800-545-2672 for the address of an authorized factory servicenter.)

Problem	Probable cause(s)	Suggested remedy	Reference page(s)
Problems common to all systems			
There is no sound when the power is ON.	Volume is set too low.	Adjust the volume level with the volume control.	11, 13, 18
The location of the various musical instruments is not well defined.	The (+) and (–) connections to one of the speakers are reversed.	Connect the speaker cords correctly.	6
The left and right sounds are reversed.	The left and right connections to the speaker are reversed.	Connect the speaker cords correctly.	6
When listening to the external unit, the left and right sounds are reversed.	The left and right connections to the external unit are reversed.	Connect the external unit's cord correctly.	7
Only one speaker is emitting sound.	One of the wires of the speaker cord is disconnected.	Connect the speaker cord correctly.	6
There is no sound when a source is being played.	The (+) and (–) wire of the speaker cords are shorted.	Switch the system to the standby mode, and reconnect the speaker cords so that they are not shorted. Then switch on the power.	6
"ERROR" message appears on the display.	Wrong operation has been done.	Operate the unit correctly by following the operating instructions.	
"-- : --" appears on the display	• You plugged the power cord in for the first time. • There was a power failure recently.	Set the time.	9
While listening to FM broadcasts			
There is a "rushing noise" during a stereo broadcast which is not audible during a monaural broadcast.	The transmitting station is a long distance.	If you are using an indoor antenna, change to an outdoor antenna.	7
You hear excessive noise during a stereo broadcast, and occasionally the sound disappears.	The installation location and orientation of the antenna are unsuitable.		
The stereo indicator ("STEREO") flickers and does not light completely.	The transmitting station is a long distance.		
	The power of the TV set or VCR is ON.	Try switching off the TV set or VCR.	
The sound during a stereo broadcast is highly distorted.	There is a building or mountain nearby. [Distortion is caused by interference between the signal from the transmitting station (direct wave) and the signal reflected from the building or mountain (reflected wave).]	Use a high-grade outdoor antenna, and install it in a good location, height, and orientation for reception.	7
While listening to AM broadcasts			
You hear an unusual beat sound.	You are using the system at the same time you are playing a TV set.	Switch off the TV set, or use the system further away from it.	
You hear a low-frequency hum.	The antenna wire is near the power cord.	Separate the antenna wire from the power cord.	

Problem	Probable cause(s)	Suggested remedy	Reference page(s)
When there is a television set nearby			
The picture on the TV disappears or stripes appear on the screen.	The location and orientation of the antenna are incorrect.	If you are using an indoor antenna, change to an outdoor antenna.	7
	The wiring at the back of the system is unsuitable	Separate the antenna wire of the TV set from the system.	
When listening to tapes			
Sound is low, intermittent, poor quality, noisy, scratchy,	Heads are dirty.	Clean the heads.	35
The deck does not enter the recording mode.	The erase-prevention tabs are removed from the cassette.	Attach tape to cover the space left by removal of the erase-prevention tabs.	33
While listening to compact discs			
The display does not show the correct indication. Disc play does not start when you press the play button.	The disc label is upside down.	Set the disc with the label facing upward.	12
	The disc is dirty.	Wipe the disc with a soft cloth.	33
	The disc is scratched.	Replace the disc with a new one.	
	The disc is badly warped.		
	The disc is a nonstandard one.	Replace the disc with a different one.	33
	There is condensation inside the CD changer.	Wait for 60 minutes before using the CD player.	
A certain music passage can't be played correctly.	The disc is dirty.	Wipe the disc with a soft cloth.	33
While using the remote control			
The system cannot be operated with the remote control.	The batteries are installed in the reverse polarity.	Re-insert the batteries in the correct polarity.	5
	The batteries are run-down.	Replace the batteries with new batteries.	5

Maintenance

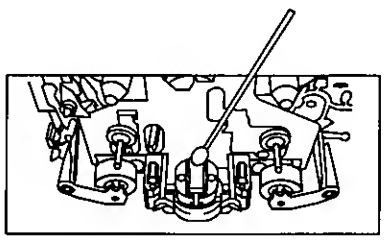
If the surfaces are dirty

To clean this unit, wipe with a soft, dry cloth.
If the surfaces are extremely dirty, use a soft cloth dipped in a soap-and-water solution or a weak detergent solution.

- Never use alcohol, paint thinner, benzine, or chemically treated cloths to clean this unit.
- Before using chemically impregnated cloth, read the instructions that came with the cloth carefully.

For a cleaner crisper sound

We recommend that you periodically clean parts (the shaded portion in the figure below) the tape contacts like the heads.
Do not use any solution other than alcohol for head cleaning.



Technical specifications (IHF'78)

AMPLIFIER SECTION

Rated minimum sine wave RMS power output	
1 kHz both channels driven	
1% total harmonic distortion	30W per channel (6Ω)
100 Hz – 20 kHz both channels driven	
1% total harmonic distortion	26W per channel (6Ω)
Input sensitivity	
AUX	250 mV (IHF '66)
Input impedance	
AUX	22 kΩ

FM TUNER SECTION

Frequency range	
	87.9-107.9 MHz (200 kHz steps)
	87.5-108.0 MHz (100 kHz steps)
Sensitivity	23.3 dBf (4.0 μV, IHF '58)
Antenna terminal(s)	75Ω (unbalanced)

AM TUNER SECTION

Frequency range	520-1710 kHz
Sensitivity	
S/N 20 dB	500 μV/m

CASSETTE DECK SECTION

Track system	4 track, 2 channel
Heads	
Record/playback	Solid permalloy head
Erasure	Double gap ferrite head
Motor	DC servo motor
Recording system	AC bias 100 kHz
Erasing system	AC erase
Tape speed	4.8 cm/s (1⅞ ips)
Frequency response	
NORMAL	35 Hz – 14 kHz
HIGH POSITION	35 Hz – 14 kHz
S/N (NORMAL type tape)	50 dB (A weighted)
Wow and flutter	0.18% (WRMS)
Fast forward and rewind times	Approx. 120 seconds with C-60 cassette tape

CD SECTION

Sampling frequency	44.1 kHz
Decoding	16 bit linear
Beam source/wave length	Semiconductor laser/780 nm
Number of channels	Stereo
S/N	
SP OUT	85 dB (JIS.A)
Wow and flutter	Below measurable limit
Digital filter	8 fs
D/A converter	MASH (1 bit DAC)

SPEAKER SECTION

Type	2 way 2 speaker system
Speaker(s)	
Woofer	12 cm cone type
Tweeter	6 cm cone type
Impedance	6Ω
Input power	100 W (MUSIC)
Output sound pressure level	85 dB/W (1.0 m)
Cross over frequency	8 kHz
Frequency range	45 Hz-22 kHz (-16 dB)
	60 Hz-20 kHz (-10 dB)
Dimensions (W×H×D)	200 × 330 × 227 mm
	(7⅞" × 13" × 8 15/16")
Weight	2.8 kg (6.2 lb.)

GENERAL

Power consumption	95 W
Power supply	AC 120 V, 60 Hz
Dimensions (W×H×D)	270 × 330 × 314 mm
	(10 5/8" × 13" × 12 11/32")
Weight	7.0 kg (15.4 lb.)

Notes:
1. Specifications are subject to change without notice. Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

MASH is a trademark of NTT.

Product Service

Do not attempt to remove the cover(s) or repair the unit yourself. Refer servicing to qualified personnel only.
The servicer will require all components to service your system. Therefore, should service ever be necessary, be sure to bring the entire system.

Product information

For product service, product information or assistance with product operation, refer to the servicenter directory.

Before moving or shipping this unit

Prepare the system as described below to prevent damage to the mechanism.
1. Remove all CDs.
2. Press CD.
3. Press ■ for 5 more seconds.
   The display will change from "WAIT" to "LOCKED" to "GOOD BYE" and finally "ZZZ". Then, the unit will be turned OFF automatically. (This will set the so-called "shipping mode".)
4. Unplug the stereo.
   The shipping mode will turn OFF automatically when you turn the power ON the next time.

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